

or remainder. The machine then reverses the motion of the stop, forcing it backward till the pawl under it is intercepted by the tooth under the computing angle. This leaves a looseness between the stop block and the computing angle. The wedge under the measuring bar has teeth also representing units. The machine then proceeds to insert the wedge, thereby raising the measuring bar with the stop block until it is again tight, against the computing angle. In doing this the wedge moves rightward, one tooth for each unit, as far as it can go. When the parts are in this position the escapement rod and rack above the computing angle moves leftward until its projection strikes against the stop block, and when at this position it is engaged by its pawl. The parts are now in readiness to begin the operation of inserting the spaces. With the insertion of each space the wedge is moved leftward one tooth, and when it reaches its starting point it causes the escapement rack in this case to slip one tooth. The downwardly projecting arm of the escapement causes the dog underneath to be pushed out from the lower tooth while the escape dog is thrust between the upper teeth, thereby causing the rack to change its position. This changes the size of spaces in the machine, after which the process of inserting the next smaller spaces is continued until the line is finished.

#### SOLID CARBONIC ACID FROM "SPARKLETS."

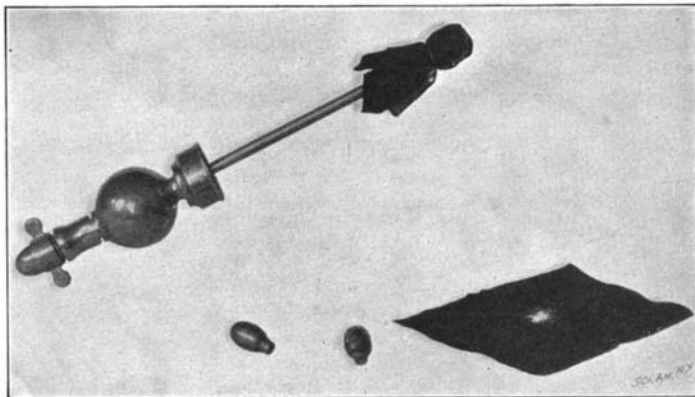
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It may be of interest to those engaged in the teaching of physics, whose laboratory equipment is limited, to know that the solidification of carbonic acid by the cold developed by its own expansion can be shown with the "sparklets" which are now sold everywhere for the aeration of beverages. The "sparklets" are small steel capsules which are filled with liquefied  $\text{CO}_2$  and sell for a few cents each. The larger of the two sizes is the best for experimental purposes. It is a good plan to start with the capsule well cooled, which can be done by packing it in ice and salt. The top of one of the siphon bottles is removed, the "sparklet" inserted, and a small piece of black velvet held tightly over the end of the tube which ordinarily conveys the gas into the beverage. The velvet should form a little bag the size of a small marble over the end of the tube and must be held tightly around the tube, so that the escaping gas has to pass through the meshes of the cloth. It is a good plan to take a few turns with a string around the velvet where it surrounds the tube. On screwing down the cap, the gas escapes into the small velvet bag, and the great cold produced by the expansion is sufficient to freeze a portion of the solid particles collecting on the inner surface of the little bag. On removing the velvet we find a layer of snow-white solid  $\text{CO}_2$  on its surface, and if a small drop of mercury be placed on it, it can be frozen in a few seconds. The experiment is absolutely without danger, and the small price at which the "sparklets" can be procured brings one of the classical low-temperature experiments within the reach of every teacher. The advantage in using black velvet is that the white solid shows off to good advantage on the dead black surface. The "nap" should be on the inside of the bag.

#### SOME DISASTROUS ACETYLENE GAS EXPLOSIONS.

An accident similar to the one recorded in the SCIENTIFIC AMERICAN for March 25, 1899, occurred February 6 at Fort Wayne, Ind., in a two-story house occupied by four persons. On the morning of the occurrence, the young man clerk visited the cellar to thaw out the water-pipes. He lighted a candle and crawled through a small opening which connected the cellar with the front part of the foundation. He did not notice the smell of gas, and nearly reached the water-pipe when there was an explosion which hurled him backward. He retained presence of mind enough to scramble back, and hurried upstairs to assist the other members of the house in getting out of the debris. The explosion completely wrecked the building. The entire front of the house was blown out, and it remained practic-

ally intact. The west wall was half destroyed, the explosion tearing away the section holding the weatherboarding apart from the studding and the plastering. The inside of the house was a total wreck. The floors of several of the rooms were pushed upward, and the fire was extinguished before it could get any headway. The child who was sleeping on the sofa directly



SOLID CARBONIC ACID FROM "SPARKLETS."

over the seat of the explosion was not killed, but received a fractured skull. It is evident that there must have been an extensive accumulation of gas beneath the house which remained undetected by the occupants.

A somewhat similar explosion took place in the house of T. E. Gould at West Brookfield, Mass. The house was lighted by an acetylene gas plant installed in the cellar. Shortly before the explosion occurred the lights failed to burn, and Mr. Gould started down the cellar stairs, with a lighted lantern, to investigate the trouble. A slight explosion drove him back, and while he was going to the outside cellar door, with the intention of throwing it open to permit the escape of the gas, the



A HOUSE AT FORT WAYNE, IND., PARTIALLY DESTROYED BY AN ACETYLENE GAS EXPLOSION.

disastrous explosion took place. Of the five persons in the house at the time, Mrs. Gould and a neighbor were instantly killed, Mr. Gould and a servant were so badly injured that they died within a week, and a sister of Mrs. Gould's, who was in one of the front rooms, escaped practically unharmed. The extent of the damage can be easily read in the illustrations. The rear of the



A RESIDENCE IN WEST BROOKFIELD, MASS., ALMOST DEMOLISHED BY A GAS EXPLOSION.

house was entirely demolished. Not a square foot of plaster was left on any of the walls, not a pane of glass remained unbroken. Bits of wreckage were picked up over a quarter of a mile away. In adjacent houses windows were smashed, curtains torn down, pictures thrown from the walls and crockery broken. The entire town was shaken, and the noise of the explosion could be heard at a distance of five miles.

What caused the gas to escape is not known, but it is supposed that the safety pipe, which was small and inadequate for the purpose, became clogged, and the gas, generating faster than it was consumed, broke the water seal of the gasometer and escaped into the cellar. It must then have been ignited by coming into contact with the fire in the steam heater which was also in the cellar.

#### Science and Yellow Journalism.

When newspapers scream at the crowd misrepresenting accounts of scientific matters so completely beyond the common comprehension that hardly a dozen men in a nation can understand anything whatever of the matter, it is easy to foresee that the reputation of men, of institutions, and even of a country, may be injured. Do American universities, came the question from abroad, sanction the publication of the results of the most recondite researches of their professors in the Sunday newspapers? If not, how did these papers secure the long earmarked quotations? An experiment in parthenogenesis is quoted as it is described by the "American" reporter as "the jelly-fish did not jelly," and Europe laughed. We have been at a great deal of pains to ascertain the facts as to responsibility for the newspaper outgivings in the special case alluded to, and we find beyond all question that the principal man mentioned as the revealer of all mystery not only had nothing whatever to do with this newspaper notoriety, but that it misrepresented him as completely as it was loathsome to him. No blame whatever can attach to him. Students acting as reporters, and for it dismissed from the institutions, and others who were careless, or worse than careless, were accountable for a quickly recognizable injury to friendships, to institutional and national reputation, and to science itself. The lessons are plain. All who believe, as we do, that the person principally quoted is utterly innocent should hasten to compensate him for the injury done him by the criminal folly of others; and assure him of the honor in which he is held by the discriminating, and for the credit that will finally be recognized as due to American science through the work of a most worthy investigator. Next in importance is the proper punishment of the willful blunderers. But most of all should every scientific man guard against any such possible happenings in the future. American Medicine.

#### Chinese Typesetting.

The Chinese language is derived from 214 root-words, which expand into the 4,000 or 5,000 words of daily use, and the thirty-odd thousand of the dictionary. It requires 11,000 spaces to hold a font of Chinese type. The large cases, or false partitions, are ranged about the room and divided into spaces for each individual type, each a word complete in itself. A Chinese printer, it is estimated, can arrange 4,000 characters a day. The work has been carefully systematized, and the characters are arranged according to their formation. A simple character designates its group, and the elaboration of form is the elaboration of its meaning, as our terminations and prefixes elaborate the root. A division is devoted to the simple character that stands for "wood," and all of its amplifications. In this space or column are to be found "box," "bed," "plum tree," and so on, through a long list of objects pertaining to, or made of, wood. Should an unusual word be needed type is cut and delicately patched to make the required character. Comparing our combinations of twenty-six letters and ten figures, besides common symbols, an idea of the labor of a Chinese compositor can be formed.

Painters' aprons, soaked in turpentine twenty-four hours before washing, lose all oil paint spots.