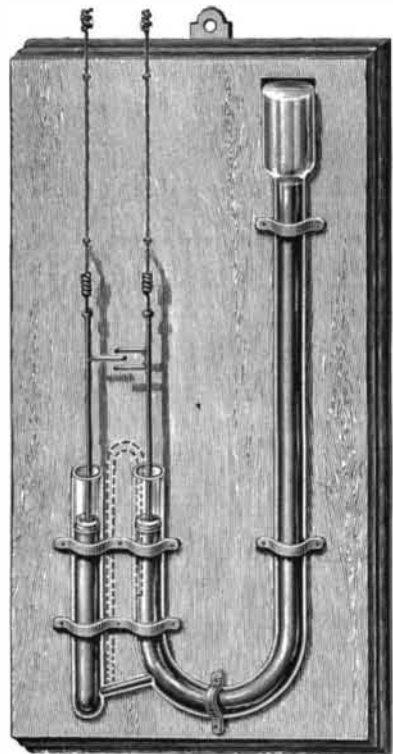


A BAROMETER AND STORM ALARM.

A barometer designed to automatically sound an alarm when there is a very sudden change in the atmospheric pressure, such as occurs in advance of any very violent storm, is represented in the accompanying illustration, and has been patented by William T. Flournoy, of Marionville, Mo. The instrument is practically a tornado, cyclone and storm indicator, and, as tested, has been found to give an alarm some two minutes before the first blasts of the storm occur. In the engraving the main mercury tube is represented with a cylindrical bulb at the top, and connected with the main tube, near the lower portion of

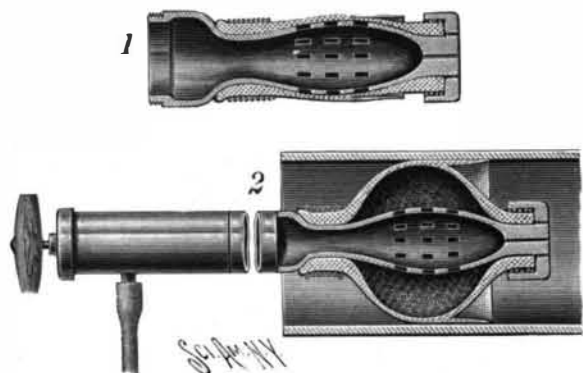


FLOURNOY'S BAROMETER AND STORM ALARM.

nearly equal height in ordinary changes of the weather, but in case of sudden atmospheric change the small opening in the connection between the tubes restricts the movement in the secondary tube as compared with that in the main tube. Such variation in the movement of the mercury in the two tubes, when sufficient to indicate an approaching storm, is made to give an alarm, by means of floats in the tubes connected with wires in an electric circuit, there being on one wire a fork and on the other a tongue, by which contacts are made, to ring an alarm when the points meet. It has been found by experience that the instrument will not give an alarm except in case of a storm of great violence, the mercury columns remaining nearly even, and giving no alarm, when the storm is of an ordinary character.

A PIPE PLUGGER AND FLUSHER.

A device designed to facilitate the flushing or plugging of sewer and other pipes is shown in the accompanying illustration, and has been patented by Clarence B. Brenneman, of Marion, Iowa. The device has a hollow, bulb-like metallic core, with openings in its walls, adapted to be engaged on the outside by a bulb of rubber or other suitable flexible material, the ends of the bulb being secured on the core by walls



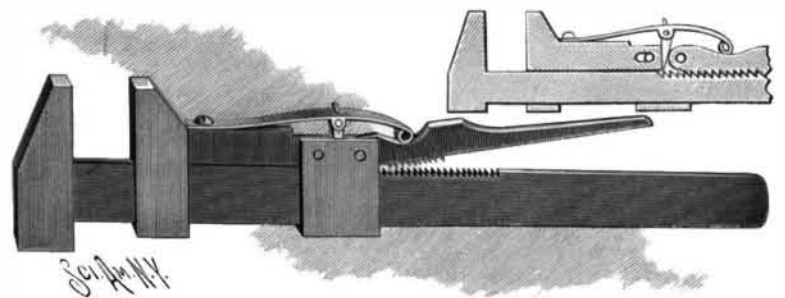
BRENNEMAN'S PIPE PLUGGER AND FLUSHER.

formed of thicker portions and the outer end being protected by a cap. One end of the core is connected with a source of fluid supply, and fluid forced into the core, passing through its side openings, distends the flexible bulb. Fig. 1 shows the device with the bulb deflated, and Fig. 2 represents the improvement as applied, with the bulb distended. In the outer end of the core is an outlet for discharging fluid under pressure into the sewer pipe, and on the outside of the forward part of the flexible bulb is an annular flange which rests tightly against the inner surface of the sewer pipe when pressure is thus applied, making a se-

cure joint between the device and the pipe. When the device is to be used as a plug to seal one end of a pipe, the opening at the outer end of the core is closed by suitable means previous to insertion in the pipe. The device may also be used for various other purposes, as the closing and sealing of bottles and other receptacles.

AN IMPROVED WRENCH.

The illustration represents a simple and efficient wrench which may be quickly and easily adjusted to a nut of any size and its jaws firmly locked in adjusted position. It has been patented by William Vessey, of No. 210 Water Street, Sandusky, O. The small figure is a longitudinal sectional view. A sleeve, open at its front end, slides on the shank back of the movable jaw, and the latter is connected with the sleeve by an arm, the connection being made by a pin, while beyond this arm the end of a lever is pivoted in the upper portion of the sleeve, the lever having on its under face teeth adapted to engage the teeth on the shank of the wrench. A spring connects the lever with the front portion of the arm connected with the movable jaw, and hinged to this spring is a wedge adapted to enter the space between the arm and the lever. When the spring and wedge are moved outward, the movable jaw may be readily moved along the shank in either direction, but when the jaws have been brought into engagement with an object, the lever is carried down until its teeth engage those of the shank, the wedge at the same time entering the space between the arm of the sliding jaw and the outer end of the lever, forming a firm locking engagement.



VESSEY'S WRENCH.

Remarkable Long Railroad Record.

A special train from Chicago over the Chicago, Burlington and Quincy and the Burlington and Missouri Railroads reached Denver at 3:52 A. M. February 16, having traveled 1,026 miles in eighteen hours and fifty-two minutes. This journey goes into history as the greatest railroad feat ever accomplished.

On straight stretches of track the train covered more than sixty miles an hour. The mountain climb from Akron, Col., to Denver, 118 miles, was made in 124 minutes, the train running an even mile a minute much of the distance.

The train making this run was chartered by Henry J. Mayham, a broker of Denver. His son, William B., was dangerously ill, and Mr. Mayham made a desperate, though unsuccessful, effort to reach Denver before the young man's death. The Burlington officials agreed to take him to Denver from Chicago in twenty-four hours. They cut down their own estimate five hours.

The following table gives a complete record of the Burlington special's fast trip from Chicago to Denver:

Miles.	Station.	Time of departure.	Time of running, minutes.
...	Chicago	*	..
206	Burlington	1:51 P. M.	231
248	Glendale	2:37 P. M.	277
282	Ottumwa	3:18 P. M.	318
306	Albia	3:47 P. M.	347
332	Charlton	4:22 P. M.	382
395	Creston	5:26 P. M.	446
447	Red Oak	6:30 P. M.	507
482	Pacific Junction	7:07 P. M.	547
538	Lincoln	8:14 P. M.	614
634	Hastings	10:04 P. M.	724
711	Oxford	11:24 P. M.	804
765	McCook	† 12:15 A. M.	955
908	Akron	1:48 A. M.	1,008
938	Brush	2:14 A. M.	1,034
982	Roggen	3:02 A. M.	1,082
1,026	Denver (arrived)	3:52 A. M.	1,132

* Central time. † Mountain time.

To realize what such a flying trip means, it might be well to compare the run with some of the long railroad runs that are looked upon as record makers.

The New York Central and Hudson River Railroad claimed to hold the record until recently, with the trial trip made from New York to Buffalo on September 14, 1891. The train consisted of an engine and two Wagner palace cars and a Central private car, and weighed altogether about 460,000 pounds.

The run from New York to Albany, 143 miles, was made without a stop in 140 minutes; that of 148 miles from Albany to Syracuse in 146 minutes, and that from Syracuse to East Buffalo, 146 miles, in 147 minutes 34 seconds.

Including the stops, the whole time of the trip was 439½ minutes and the distance 436½ miles, or a trifle less than 60 miles an hour. Since then this road made a new record, on September 11, 1895, when, with a train weighing 361,000 pounds, the same run was made in 6 hours 51 minutes and 56 seconds, at an average speed of 63.54 miles an hour.

The Lake Shore and Michigan Southern Railroad claims to have beaten this on October 24, 1895, with a

special run from Chicago to Buffalo, a distance of 510.1 miles, with a train weighing 304,500 pounds.

The trip was divided into five stages, and the first, of 87.4 miles, was made at the rate of 61.38 miles an hour; the second, of 133.4 miles, at the rate of 64.24 miles an hour; the third, of 107.8 miles, at 60.96 miles an hour; the fourth, of 95.5 miles, at 66.99 miles an hour; and the fifth, of 86 miles, at an average rate of 72.91 miles an hour. The total distance was covered in 8 hours, 1 minute and 7 seconds, actual time from station to station, which gave an average speed, including stops, of 63.61 miles an hour.

Remarkable as these results were, it would not be

fair to compare them with a run of twice the distance of the longest of them, for as distances increase, the difficulties of making high speed also increase. Grades, adverse winds, bad pieces of track, and all the other elements which work against high continued speeds multiply usually in a sort of geometrical progression to make difficulties.

To give some idea of this, the greatest runs which the New York Central and Hudson River Railroad has recorded for trips across the continent will offer a fair basis of comparison.

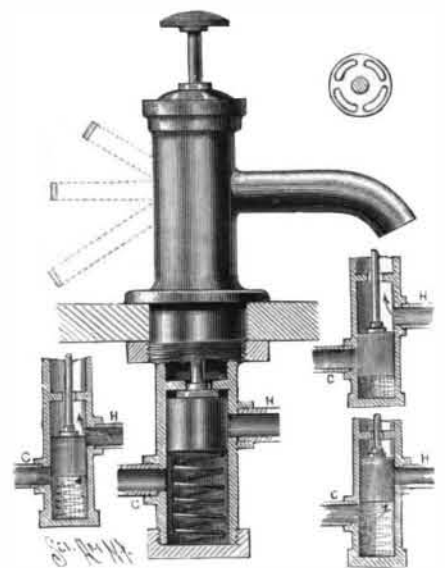
The fastest of these was one with the China and Japan mails from Vancouver to New York by way of the Canadian Pacific, the Rome, Watertown and Ogdensburg and the New York Central and Hudson River roads.

The distance traveled was 3,212 miles, and the time was 3 days, 12 hours and 42 minutes, or an average speed of 37.9 miles an hour.

A VERY CONVENIENT FAUCET.

A faucet with which one may, by one movement of its plunger head, draw either hot or cold or warm water, and readily lock the faucet open in the desired position, is shown in the accompanying illustration, and has been patented by George T. Kenly, of Lake Montebello, Baltimore, Md. The cylindrical valve or piston of the faucet has opposite arc-shaped longitudinal delivery channels, as indicated in the small figure, to afford water communication between its upper and lower ends, and the piston is kept normally at the top, or in closed position, by a coiled spring, as shown in the broken-away portion of the main view. The other three figures show the position of the valve when it is depressed as necessary in drawing either hot or warm or cold water.

To hold the piston or valve open, that the water may run without the valve being held down by hand, a series of pivoted bails of different lengths are arranged to be moved into engagement with the top of the plunger. The faucet may be fitted in the floor and work-



KENLY'S FAUCET.

ed by foot pressure, if desired, leaving the top of the basin free. It has also been patented in Canada and many foreign countries.

An appeal is being made to the men of wealth in America to provide a suitable building for the societies composing the Scientific Alliance of New York. The combined membership of these societies is now over one thousand. Nearly all of them issue valuable publications; several of them possess important libraries and growing collections of specimens, and all are actively engaged in promoting original research. Burlington House partly provides for London scientific societies, but there is no building of like character in New York, though it is hoped that one will be provided by the enlightened liberality of private citizens.