

BIG TESTING MACHINE

Bridges Made Safe by the Use of New Device.

EVERY STEEL PIECE IS TESTED

Engineers Say Powerful Apparatus Will Revolutionize Structural Work Over Water—Bill Before Congress to Authorize Building of Still Larger Test Machine.

According to civil engineers, the vertical compression test machine of 10,000,000 pounds capacity, which is being built by a well known firm in Philadelphia for the structural material testing laboratories of the United States geological survey, will revolutionize the building of bridges in the United States, making such an occurrence as the collapse of the Quebec bridge with attendant loss of life impossible.

This machine, with a gross weight of more than 200 tons and an extreme height above the foundations of about eighty feet, is by far the largest testing appliance ever constructed. Engineers seen recently said that the reason there is always so much uncertainty about the strength of a great bridge is because no machines have ever been constructed of sufficient power to test the great columns of steel used in them.

It was pointed out that every piece of steel used was subjected to a specified test, the engineers knowing the quality of the material used and basing their calculations on the strength of column or cord thereon. But the actual strength of the ponderous piece of steel was in the last analysis known on paper only, and the statement was repeatedly made that had there been in existence such a machine as that the government is now having constructed the weakness of the Quebec bridge would have been known before it was too late.

The nearest approach to the proposed government machine is the celebrated Watertown arsenal machine, Watertown, Pa., designed by A. H. Emery of Stamford, Conn. The enormous cost of such a machine as the government has contracted for has until now been the obstacle between the private plants and its construction, and even when the Philadelphia firm was first engaged to construct this machine it was not designed to have it larger than necessary to test the large blocks of stone being used in government and other buildings throughout the United States.

But the supervising architect of the geological survey urged that the capacity of the machine be extended so as to test whole columns of brick, stone, concrete and even of steel, and accordingly the original clearance between "the heads" was increased from twenty-five to sixty-five feet. Now, since the purpose of the government has become known, the department is being flooded with letters urging its early completion that it may be used not only in the cases of bridges already under construction, but to test built up structures as well.

The machine in simplest form is nothing more than a huge hydraulic press with one adjustable head and a weighing system for recording the pressure developed in it by means of a triple plunger pump. Between the base of the machine and the adjustable head when removed to the farthest point is a distance of sixty-five feet; consequently the machine is capable of testing the supporting strength of a column more than sixty feet in length.

Some idea of the size of the machine may be obtained from a statement of the weight of its principal parts. The castings for the base and the top head weigh approximately 50,000 pounds each. Each main screw will weigh over 40,000 pounds, the lower platform about 25,000 pounds and the main cylinder 16,000 pounds. The top of the machine will be about seventy feet above the floor, and the concrete foundation upon which the machine rests will be about eight feet below the floor line.

So many letters were sent to members of congress and to the department of geological survey congratulating the government on taking the initiative in the construction of such a machine that Senator Teller has introduced a bill providing for another machine more than twice as large as the Philadelphia firm's apparatus, having 11,000 tons capacity in compression and 5,500 tons in tension, taking columns or cords 100 feet long.

Mr. Emery, designer of the Watertown machine, is named in the bill as designer and builder, and the price, including the machine and two eighty-ton cranes, is fixed at \$1,750,000. In addition, \$200,000 is to be appropriated for a building to house the machine.

According to the specifications, this machine will be able to give and weigh loads of tension up to 11,000,000 pounds and loads of compression up to 22,000,000 pounds. The machine is to be provided also with tension holders to test round, square and rectangular bars up to 3,500,000 pounds, with lengths up to 100 feet.

The bill explicitly states that if the compression cords of the Quebec bridge had been tested by such a machine their weakness would have been discovered in time to save the structure.—New York Times.

Memorial of Jefferson Davis. A part of the Kentucky farm on which Jefferson Davis was born has been purchased by an association composed of southerners. It will be made into a park and preserved as a memorial of the president of the Southern Confederacy.

NEW WOODS FOR CALIFORNIA.

Eastern Hard Woods to Be Transplanted to Pacific Coast.

The Pacific coast will soon be the scene of an interesting tree growing experiment. The United States forest service at Washington is planning to introduce a number of the more important eastern hard woods into California and will experiment this year with chestnut, hickory, basswood, red oak and yellow poplar or tulip trees. Small patches of these trees will be planted near the forest rangers' cabins on the national forests, and if these do well larger plantations on a commercial scale will soon be established on wider areas.

There are more than 125 different species of trees in California, a number of which produce some of the most valuable varieties of lumber in the United States. Although considerably over one-half of the species are hardwood or broad leaved trees, yet, with the exception of the exotic eucalyptus, there is not a single species of hardwood there ranking in commercial importance with the leading eastern hardwoods. Climatic conditions in many parts of California are undoubtedly favorable for the growth of a number of the valuable hard woods, and the absence of these trees is due mostly to unfavorable factors of seed distribution.

If the experiments are successful a valuable asset will have been added to the forest resources of California, which should prove of special benefit to the local furniture and vehicle industries.

THE MODERN MIDNIGHT OIL.

Two Remarkable Jersey Boys Caught In Studious Devotion by a Cop.

Patrolling the streets of South Orange, N. J., about 1 o'clock the other morning, Policeman Mattle came upon a sight that made him stop and rub his eyes. There under the glare of the electric light at the corner of South Orange avenue and Bailey street were two lads, oblivious of their surroundings, poring over a school-book. It brought back his old school days, and Mattle thought that he was in a dream. He approached the lads and touched one of them on the shoulder.

"What are you doing here?" he asked.

Then he heard a story that made him marvel and write down the youngsters as the most praiseworthy he had ever heard of. They were behind in their studies, they said, and after tending a sick mother all the day and into the night they had at last, after she had fallen asleep, determined to make up for lost time and prepare their studies for the morrow. Afraid of disturbing their mother, they went out of doors looking for a bright light. The brightest is at the corner where they were found by the policeman.

Mattle took the boys to the station house, and they were taken in charge by their father. The boys are William and Alfred Papke, twelve and fourteen years old, of 502 Twelfth street, South Orange. They are dutiful sons, the father said, with a touch of pride, as he led them away.

COMPASS RECORDER.

Lake Sailor Invents Device For Tabulating Vessel's Course.

John Schuette, formerly of Menominee, Mich., and a well known lake seaman, who for several months past has been experimenting with his new compass recorder, has announced to Menominee marine men that the device has been pronounced perfect by experts and that he will soon have it on the market.

The instrument, the first of its kind to be brought to perfection, is said to be able to record the course of a steamship or sailing vessel every moment the boat is in motion. By means of electricity and a series of disks and keys a long strip of paper marked by the points of the compass and hours of the day is traced by a thin stream of ink, so that the captain from his private room can without moving see exactly the course of the vessel.

The device also serves to keep tab on the wheelsman, for it is impossible for him to disobey orders without being detected.

Women Fighters of Big Hats. Policemen are looking for a number of women in Los Angeles said to have formed a secret society for the purpose of the annihilation of the big hat. The receipt of a dozen or more complaints from women regarding assaults upon their headgear is responsible for the activity of the police. Women who wear big hats are the object of attack. The finer the hat the more vicious the assault upon it. The women who make the attacks are well dressed and apparently refined and wealthy. They all wear small hats and seem to hold a violent hatred for the big straws and ultra felts. One woman was ejected from a Hollywood car because of her attack upon women passengers who wore big hats.

A "Swat the Fly" Device.

William Kaute, who lives in Kansas City, Kan., has perfected a "swat the fly" device, on which he has obtained a patent. It consists of a flat plate with extended edge, in which an ordinary sheet of sticky fly paper is placed. The raised edges prevent the paper from coming in contact with the walls or ceiling. A long handle enables the wielder of the implement to "swat" flies perched on the ceiling or other remote places in a room.

The amity that wisdom knits not, folly may easily untie.—Shakespeare.

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- \$20 ladies' suit, only \$13
- \$3.50 linen suits, now \$2.80
- \$1.25 silk, the yard now, 75c
- \$7 to \$12 dress skirts, now \$4.95
- 35c stock collars, each 19c
- 25c ladies' hose, now 19c
- 3 packages 5c pins now 10c
- \$1.25 table linen, yard, 52c
- \$1.75 napkins, the dozen, \$1.15
- 35c and 40c ribbons, yard, 25c
- 20c Val. lace and etc., yard, 8c
- \$5 men's shoes, pair, \$3.50
- 50c pillow top, now 39c
- \$14 linen suits, each \$9.50
- \$3 men's hats, now \$2.20
- \$2 dress goods, the yd, \$1.39
- 75c towels, the pair, 55c

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DAYS OF THE WEEK.

At One Time They Were Designated Merely by Numbers.

Formerly the days of the week were numbered one, two, three, four, five and six, beginning with the Sabbath. Even now the custom still prevails among certain modern Greeks, the Slavs and the Finns. Many old fashioned and orthodox Quakers, particularly in the north of England, still hold to this custom, which was the common one in the days of the apostles and down to the fourth century as well as usual among the Jews and the Arabs. The orthodox Quakers use the numerical system in preference to the ordinary on the ground that the gods and goddesses, from whom the names were taken, were not of the highest respectability in point of morals.

The week was originally only a convenient quarter of the lunar month; hence it began on Monday, or moon day. The Italians still call Monday the first and Sunday the seventh day of the week. Tuesday is derived from the Norse Tiw, who corresponded to Mars, the god of war, a most disreputable person in the eyes of Quakers. Thursday was Thor's day. Thor being a god warrior who was morally no better than he ought to be. Wednesday, again, was Woden's day. Woden being the god of battle rage. The Romans called this day Mercury's. Friday was supposed to be the luckiest day of the week—for women. It was called after the Norse Friga, the goddess of love, and is the best day for weddings. For the pagan Romans it was also the day of Venus, though the Christian Romans called it the day of ill luck because Christ had been crucified on that day. Saturday was called after Saturn, and Sunday was known to the Christians as resurrection or sun day.

The week of seven days was imported from Alexandria into Greece and into Italy about the time of Christ. The Greeks had previously divided their month into sets of ten days, the Romans into sets of eight days, three and a half sets being equal to one month.—New York World.

Daily Gazette 50 cents per month.

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