

sented himself and announced that he had come to win that \$5. The man handed him the "handles," and started the machine. The boy stood it wonderfully. The operator turned the crank faster, and asked the boy how it felt. The boy said it did not feel at all. The man thought something must be the matter, and commenced an elaborate tightening up of the screws, and then commenced another series of swift revolutions, which ought to have produced a current sufficient to kill the boy; still he laughingly assured the fellow that he did not experience the slightest sensation.

Out of patience, the man demanded to see his hands, and then the secret was explained. The boy belonged to the telegraph office, and had picked up one of the pieces of insulated wire now being put up inside the office, and had passed it up one sleeve of his coat, around his shoulders, and down the other sleeve, and then uncovered the ends of the wire in each hand. Thus armed, he had gone to the electric man; of course, the uncovered ends of the wire pressed against the metallic handles, presented a better medium than the boy's body, and the current simply passed to them and along the insulated wire around the boy's body, without touching him. That "electrician" was very mad, and all the more so as the crowd drawn together thought it a good joke, and took the boy's part. The man was so laughed at that he left town.—*Scientific American.*

#### THE USE OF GLUE.

To do good glueing, the work must be well fitted. We use a scratch-plane and file in fitting work for glueing. The shop must be warm, the parts to be glued well warmed, and a kettle of good glue in readiness, well cooked, and brought to the proper consistency. Badly-tempered glue is one great point of failure. If the glue be too thick or too thin, the work is ill done. It is most frequently used too thick. In glueing panels for carriage work, etc., the work should be well run over a few times with the glue brush, until the pores of each part are well filled, and if the work be well warmed, the glue hot and of the right thickness, the first coatings will frequently strike in or be absorbed by the pores of the wood.

This striking into the pores is what gives a glue joint its great strength and durability. Now, having clamps, hand-screws, etc., ready, put together immediately, bringing the parts firmly together, leaving no body of glue between, but do not get in a hurry. Use nothing but the best glue. If we do a bad job of glueing, screws will not cure it; it is a bad job at best, and will give out sooner or later. When glue joints open, they begin at corners or ends, and work in by degrees. Screws at these

points may stop the openings for a while, which is the most they can do. They are of but little use in panels to carriage bodies.—*Coachmakers' Manual.*

#### ABOUT LIGHTNING RODS.

It seems to be proved that copper points on lightning-rods are more liable to fusion by lightning than those of iron although copper is a much better conductor of electricity. In a discussion of this subject before the Belgium Academy of Science, it was stated that in fourteen cases of partial or total fusion of the points, seven were of copper, three of iron, and four of platinum. The round iron rod has the advantages over the square. It should increase in diameter downward and should consist of six-foot lengths, each welded together. If the ground-string of the conductor, is to be led over-ground, it ought to be eleven-sixteenths of an inch in diameter, screwed and one and an eighth inch long—the iron rod adjoining to be screwed similarly—but one to have a left and the other a right handed thread, joined by a corresponding screwed socket, the ends of the rods abutting against each other; all the other joints to be made in the same way. The horizontal string of the conductor is to be joined to the vertical by hand-soldering a ring welded from the former to the latter; the ground string terminating in a cast-iron pipe filled with charcoal and with a hermetically closed cover, screwed at the part where the conductor passes through—the end of the conductor being screwed into a metallic dice.—*Ex.*

#### LARGE NEWSPAPER.

The largest paper in the world is said to be the Hereford (England) *Time*, established in 1832. It is published weekly, consists of two sheets, each containing eight pages—each page of seven columns the columns being longer than those of the *London Time*, and each page containing one more column than a page of the *Times*. In addition, a railway table of seven columns is published every month, and given away with the newspaper, the price of the whole being three and a half cents. A notable feature is the indices; one index referring to every department of news and advertisement, and the other referring to the auction advertisements, the latter forming a distinguished feature. The paper is published in a cathedral city of less than 20,000 inhabitants. The average circulation exceeds 10,000 copies, and the advertisements during 1870 numbered more than 20,000.

A Machine has recently been perfected in London, with which a writer, using a pen in the usual manner, can at the same time produce a duplicate so small as to be invisible to the naked eye, but so distinct that a microscope will reveal every line and dot. A most useful application of the apparatus will be for the prevention of forgery, as private marks can be made to notes and securities, legible under microscopic power but which no imitator could see or even suspect the presence of. The inventor, a Mr. Peters, states that the entire contents of the Bible can, with the help of this machine, be written twenty-two times in the space of a square inch.