**Automatic Telegraphy.**

Among all the problems which engage the attention of inventors there seems to be none more attractive than that of combining telegraphy and typewriter in such a manner as to produce a high-speed instrument saving time and labor at the wire. Automatic senders and receivers of one kind or another are submitted to the Western Union at the rate of about one a week and rejected at the same rate.

There is a fortune in store for the man who can invent a high-speed sending and automatic receiving instrument, says The New York Sun, but there is one tremendous obstacle in the way of inventors who attempt it. That obstacle is the limit to the capacity of the operator of the typewriter.

It is comparatively easy to invent a combination of typewriting machine and telegraph instrument in which the operator, when he pounds the keyboard at one end of the wire, records, after the manner of the stock ticker, line by line on ordinary paper at the other end of the wire the words he frames at his end. The trouble is that he cannot do it fast enough.

The operator who in practice can typewrite 100 words a minute has yet to be found. The speed at which the wire can carry the message is almost limitless. At present it is limited only by the capacity of the operators, sender and receiver, and speed, even more than labor-saving, is the thing the telegraph companies are seeking.

For the last three years the Western Union has been experimenting on two circuits between New York and Chicago and New York and Buffalo with an automatic system called the Buckingham. This is not strictly a combination of telegraph and typewriter.

The typewriter is a perforating instrument which punches holes in sheets of paper which are fed into the sending instrument and are sent and received automatically. By this system from fifty to sixty messages of an average of thirty words each can be sent an hour. The trouble about this is that two or three men are required to prepare the messages.

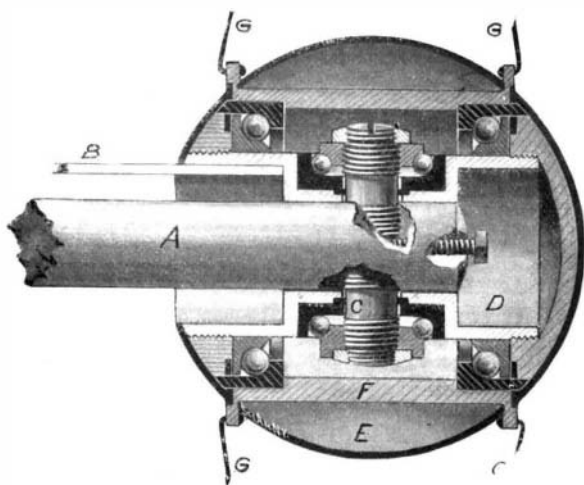
There is an instrument already invented and now being perfected and developed for commercial use which may be brought into practical use before automatic telegraphy comes to pass. This is the Poulson telephonograph, invented by a Dane.

In this instrument words spoken into a phonograph combined with a telephone are reproduced on patent tape at the other end of the wire. Should this be developed cheaply and universally it may revolutionize telegraphy.

PIVOTED HUB.

The accompanying illustration shows an improved pivoted hub which is more especially designed for the front or steering wheel of a road vehicle, to permit the convenient and quick turning of the wheel in the desired direction. The construction is such as to reduce the friction of the working parts to a minimum, and the various details are so arranged as to facilitate adjustment, permit proper lubrication and render the device entirely dust-proof.

The wheel, which is mounted on axle A, is steered

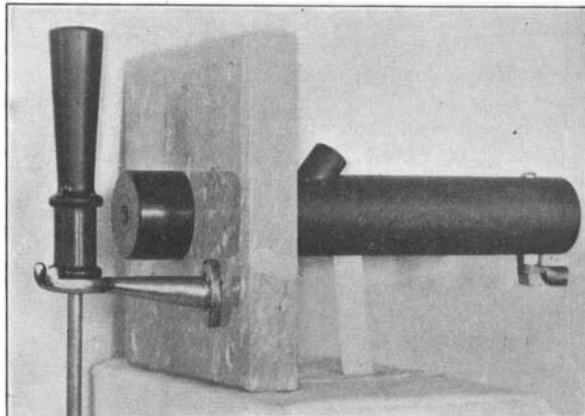
**PIVOTED HUB.**

by a bar B secured to the inside of the bearing D. A vertically-disposed pivot C passes through this bearing and the axle, and is held firmly in place by a set screw. A cone is screwed on each end of the pivot piece, engaging balls mounted in a cup fitted in a recess of the tubular bearing D. Ball bearings are also mounted near the ends of the tubular bearing to support the hub F. A spherical covering plate E fits over this hub between the annular flanges to which the spokes G of the wheel are secured. Suitable packing rings are

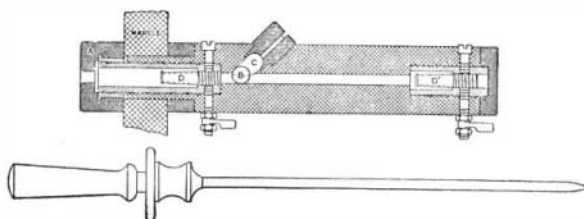
provided at the bearings to prevent the entrance of dust, and lubricants are admitted through a pipe in the hub. The inventor of this device is Mr. J. H. Genter, 25 Second Avenue, Albany, N. Y.

THE "STAB" SWITCH.

A new form of electrical switch is shown in the accompanying pictures. It is known as the "Stab" switch, and while its exceedingly neat appearance is one of its strong features, it is said to be of great efficiency, being designed particularly for series arc and incandescent

**THE "STAB" SWITCH.**

lighting. It consists of a thick fiber tube which is held to the switchboard marble by the escutcheon, A, which is made of hard rubber. The circuit is closed by the insertion of a rod connecting the front and rear terminals, D, D'. Withdrawing the rod to open the circuit allows the little marble ball, B, to drop out of its tube, C, into the main tube of the switch, smothering any arc which may form. In closing the circuit, the

**SECTION OF THE "STAB" SWITCH.**

rod, which is pointed, pushes the marble ball up into the tube, C. It is claimed that this switch works satisfactorily up to 6,000 volts, and it is readily removed from the marble by simply unscrewing the escutcheon.

Franklin Institute Prizes for Inventors.

The Franklin Institute of Philadelphia has from time to time received endowments for the purpose of enabling its Committee on Science and Arts to recognize in a fitting manner noteworthy contrivances of American inventors. The Institute issues diplomas of merit to applicants in cases where awards of medals have been made to inventors, and where the applicants have failed to receive recognition for their share in the development of an invention. In order further to increase the value of awards as well as to give greater publicity to the work of the Committee on Science and the Arts, each award or recommendation is accompanied by an engraved certificate of the fact.

In the month of May, 1890, Edward Longstreth, machinist and retired member of the Baldwin Locomotive Works, deposited with the Franklin Institute the sum of \$1,000 for the founding and perpetuation of the Edward Longstreth silver medal. The interest accruing from the principal of the sum is used in awarding the medals for encouragement of invention, and in recognition of meritorious work in science and the industrial arts. The awards are made by the Franklin Institute through its Committee on Science and the Arts.

Mr. Longstreth also presented to the Institute twelve silver medals and their dies. These Longstreth medals are awarded for useful inventions, important discoveries, and meritorious work in contributions to science or the industrial arts.

Mr. John Scott, an Edinburgh chemist, in 1816 bequeathed the sum of \$4,000 to the corporation of the city of Philadelphia, directing that the interest and dividend on that sum be laid out in premiums to be distributed among ingenious men and women who make useful inventions. Each premium of \$20 is accompanied by a copper medal bearing the inscription "To the most deserving." These awards were later vested in the Franklin Institute. The rules for the John Scott legacy premium and medal can be obtained from the Institute.

In 1848 Elliott Cresson, of Philadelphia, conveyed to the Franklin Institute the sum of \$1,000. Out of the first sufficient moneys received for interest on this sum, suitable dies were to be prepared for striking a gold medal. After the dies had been prepared, the Trustees were to have gold medals made, which the Treasurer of the Franklin Institute was to deliver to such persons as had made meritorious discoveries in the arts or sciences or who had invented or improved some useful machine or had devised some new process or combination of materials in manufactures, or had shown ingenuity, skill or perfection in workmanship.

The Origin of the Omnibus.

No less a personage than the famous mathematician, Blaise Pascal, is said to have introduced the important vehicle, which we call the "omnibus." Unlike most other men of learning, Pascal was more or less interested in the affairs of practical life. He was the inventor of the push-cart that now perambulates our streets.

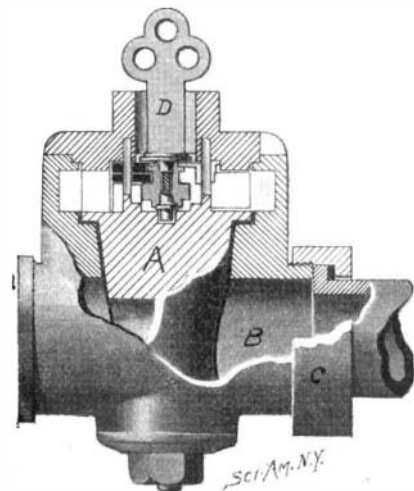
In 1661 he had large wagons built for regular traffic in the heart of Paris. He allied himself in this undertaking with several influential friends, among whom was the Duke de Roannes.

In 1662 Louis XIV. granted letters patent to Pascal, in which it was said that these carriages were intended for the comfort of poor people who had to go to courts of justice, or who were sick and so poor that they could not afford to pay the two pistoles exacted by the chairmen and the drivers of coaches. At first the use of the vehicle was not generally permitted. A royal decree forbade its use by soldiers, pages, lackeys, and other liveried servants, as well as artisans and porters.

Pascal, in spite of the fact that he only lived to be thirty-nine, is said to have made no inconsiderable sum out of his invention. After the vehicle had been in use for some sixteen years, it was abandoned for various reasons. It was not until 1812 that it was again introduced, this time in Bordeaux, which city was followed in 1821 by Nantes and in 1827 by Paris. The vehicle was improved and rapidly became popular. Now it has been almost displaced by the tramway. In modern times the vehicle was called an omnibus simply for the reason that it was intended for the carriage of all, without any restrictions as to lackeys, pages, or footmen.

LOCK VALVE.

For the purpose of preventing dishonest persons from using water or gas without the same having passed through the meter, Mr. William H. Baker, of 156 Waverley Place, New York city, has designed a valve which may be operated by the use of a key only. The valve plug A, as shown in our illustration, which is provided with the usual central opening for the passage of fluids, fits snugly into the valve-casing B. The lower end of the plug is turned down and threaded to engage a nut which securely holds the plug in place. A cap-piece fits over the upper end of the plug in a socket in the valve casing. The under surface of this cap-piece is provided with a suitable lock having bolts, which may be operated to enter recesses in the side walls of the valve casing. The lock is operated by the key D. The key passes into the lock between projecting walls on the cap-piece which form an angular nut. When the bolts have been withdrawn from the recesses in the valve casing, this nut may be

**LOCK VALVE.**

gripped by a wrench and the cap-piece rotated. The valve plug is provided with posts which enter sockets in the cap-piece, so that rotation of the cap-piece results in the opening or closing of the valve. The lock shown comprises a key-post and a number of independent tumblers; furthermore, the lock is double-acting, in that it has two bolts sliding in opposite directions, the bolts being to some extent independent, so that it would be extremely difficult to open the lock without the use of the proper key.