

CURIOUS AND INTERESTING WATCHES.

A watch made entirely of iron, of comparatively crude but still most interesting workmanship, is shown in the central picture herewith, its engraved dial marking the hours from 1 to 24. There are two hour circles, an outer and an inner one, and the watch has an hour hand only. It is of the type known as saddle watches, and has both a barrel and fusee, being probably one of the oldest specimens of a watch with this maintaining power, according to the American Jeweler, to whom we are indebted for illustrations and details.* A catgut string is used in lieu of a chain for connecting the barrel and fusee, and the balance is in the form of a straight bar, like those found in old Black Forest clocks, instead of the circular balance now in use. The edge of the case, which was evidently cast and then chased and finished, has an artistic frieze, the motive being birds and foliage. The watch is apparently of German workmanship, and probably more than three hundred years old.

The egg-shaped watch, shown in side and face views, at either side, was made by Denis Martinot, Paris, in the 16th century, and is of gilded silver. Its dial illustrates the three elements, air, water and earth. Jupiter, sitting on his throne and surrounded by clouds, represents air; Neptune, holding aloft his trident in his right hand, inside the dial circle, simulating water; while below the dial reclines a mythological figure designed to represent the earth. Surrounding these figures is a delicate design of conventionalized leaves and flowers. On one side of the case is represented Fame holding a laurel wreath, while opposite is the reclining figure of a warrior, and between them is a drum and antique shaped gun. On the other are other reclining figures representing a herald and the god of war. The watch has an hour hand only, and the movement is richly ornamented to correspond with the case.

THE TYPEWRITER TELEGRAPH.

The quick transmission of news has become one of the most imperious needs of our age. The public wishes to be informed at every instant, and in as short order as possible, as to the most recent occurrences of every kind. To cite but a few examples, we may mention as particularly interesting the mind of the public the races, the various sports, stock operations, political events, etc. The present means that we have at our disposal in Paris for obtaining information are really inadequate, and the telephone itself has not been able to remedy the matter. It became necessary to adopt other arrangements in order to meet the requirements of the present hour.

The Havas agency at Paris has been endeavoring to find a solution of this difficult problem for ten years past, and has finally cast eyes upon a printing telegraph invented by Mr. Wright, an American. This telegraph permits of reproducing at a distance the matter printed by a typewriter. Our engraving represents the latter in the foreground. The manuscript to be transmitted is printed at a distance by means of a writing machine located in a central transmitting station. The matter thus printed is reproduced at the same time in registering apparatus installed in receiving stations at the houses of the various subscribers. In our figure, the receiving machine is shown at the rear of the transmitting one.

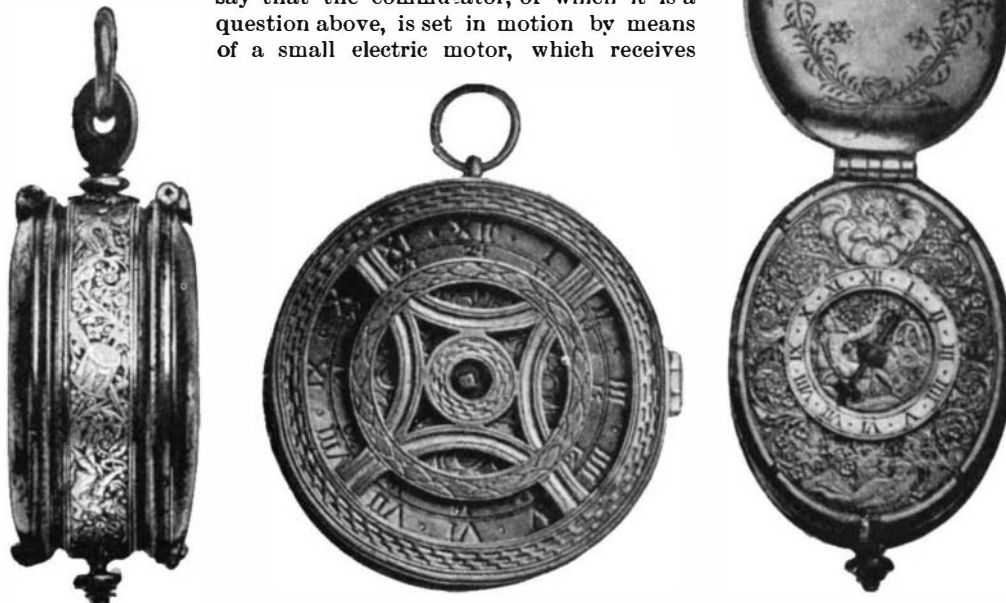
After many hesitations and difficulties, it became possible to install a service which is now operating in the offices of the Havas agency, Place de la Bourse. Mr. Nigron, superintendent of this service, has been kind enough to explain the system to us and show us the mechanism of it. We shall be content in what is to follow to point out the general principle solely. The entire number of our journal would scarcely suffice to give a detailed description of the different apparatus.

In one of the halls of the Havas agency is installed a central station that constitutes the transmitting post. A writing machine with keys actuates a special commutator that permits of sending currents into a line upon which are arranged various receivers or writing machines. These latter are genuine masterpieces of mechanics, without clockwork movement. A type wheel, upon which the various letters of the alphabet are engraved in relief, obeys the currents that are sent from the transmitting station and prints the transmitted characters upon a roll of paper. There is no longer a question here, as in the old American machines, of a band of paper three-quarters of an inch wide, but rather of a roll five and a half inches in width. It is therefore possible to obtain a sheet constituting a true document. Without dwelling at length upon the interior details, we shall say that the commutator, of which it is a question above, is set in motion by means of a small electric motor, which receives

at the moments of activity at the Exchange. All the dispatches received from every quarter by the Havas agency are immediately sent out as soon as received in the office. The information relative to the service of the races is also very curious. If it is a question of an important affair, the particulars telephoned from the race track to the agency are transmitted at the moment of starting, at the third stretch, half stretch, finish, etc. A race has scarcely terminated before a subscriber has been able to foresee the results of it. The great interest that a service of this kind may present may be readily seen. The price of subscription, moreover, is not high, it being \$300 a year for the financial service and \$120 for that of the races.

The Havas agency will not stop at the two services of which we have just spoken. It is working at present at the installation of a third service for the supplying of political news. The machine utilized will be more powerful and more rapid than the preceding. All the machines necessary are not yet ready, but we have already been able to see some models of them, one of which we give a general view of in the figure. In the foreground is the transmitter or writing machine that serves to establish the contacts necessary for the electric transmission. Back of this is the receiving apparatus, like those that are installed at the houses of the subscribers. At the top is seen the band of paper that unwinds opposite the type wheel that does the printing.

These present arrangements, imported into France for the service of rapid distribution of information, prove to us that the proverb "Time is money" does not remain



CURIOUS AND INTERESTING WATCHES.

the electric energy necessary for its operation from a battery of sixty Tudor accumulators. The charge of these elements is effected by the aid of a deviation taken from the Edison sector.

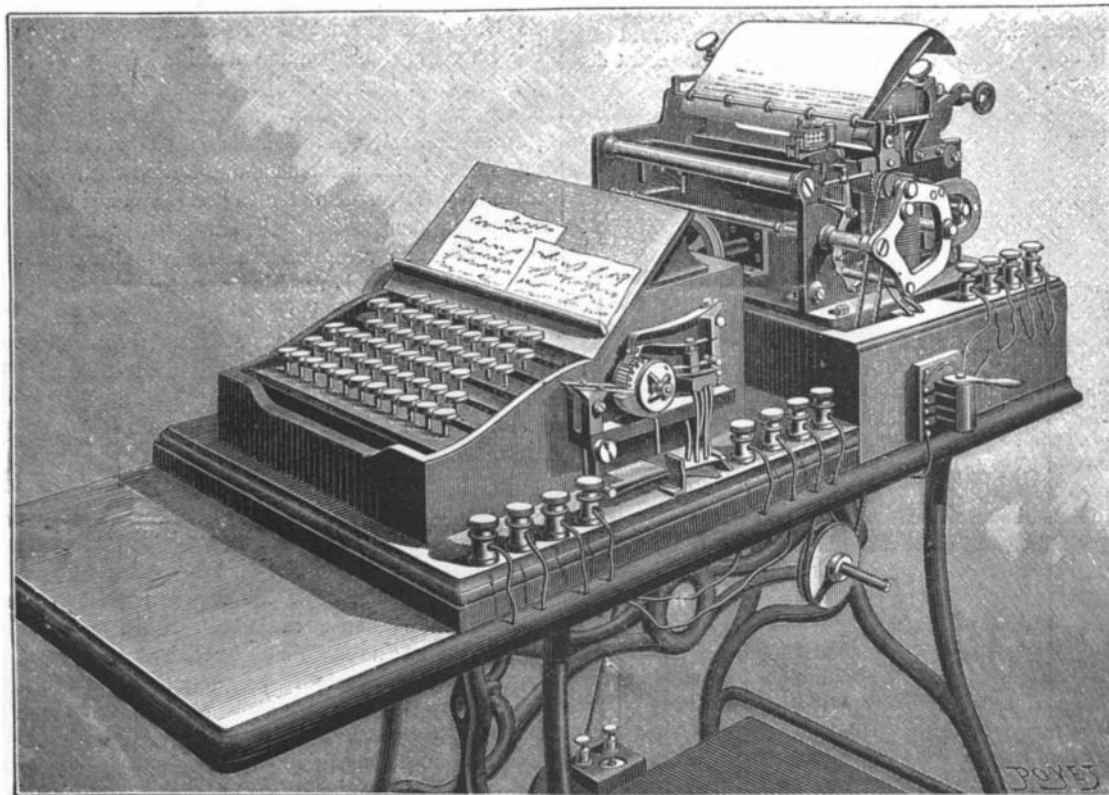
The transmission in the exterior circuit of the apparatus is made at a difference of potential of 100 volts and with an intensity of 0.38 ampere. The Havas agency is at present performing two services, the race track and the financial. It is supplying about forty-five subscribers distributed to the number of fifteen per circuit. The number of subscribers per line is not limited, but the derangements of the service can

English, but is becoming universal.—La Nature.

Injury to Boilers by Grease.

It has often been observed that small quantities of grease in combination with deposits lead to boiler accidents. This compound gets deposited on the plates, and the most violent water circulation is sometimes insufficient to remove it. The plates, in consequence, get overheated and accidents arise. The introduction of grease inside the boiler should be avoided, especially where the water from the condenser is used for feeding the boiler, by the use of a sufficiently large feed water filter. The Berlin Boiler Inspection Society had the following case brought under its notice: Two single-flued boilers, 4 feet 8 inches diameter, 23 feet long, flues 28 to 22 inches diameter, pressure 12 atmospheres, were used to generate steam for a 150 horse power engine with surface condenser. The installation had only been in work since July, 1893. A considerable portion of the flue of the left boiler had collapsed. This could not be attributed to shortness of water. On examination it was found that nearly all over the boiler a fatty brown slime had been deposited, which, being placed on a red hot iron, burst into flame. The feed water pump got its water from a large open tank over which a small filter was placed. The condensed water was led to this filter in order to have the grease removed. Unfortunately, the arrangements were so bad that a considerable portion of the grease found its way into the boiler.

A similar case was recorded by Mr. Abel at the last meeting of the Markisch Society of Testing and Inspecting Steam Boilers. Four boilers, the feed water of which was heated by the exhaust steam from a Westinghouse engine, after being in use about six weeks, were so damaged that one boiler had to be completely removed; the other three had to receive extensive repairs. An examination of the boilers showed that the flues were covered with a deposit of fatty slime. An analysis of this showed that about 52 per cent of it consisted of mineral oils and paraffine, and 27 per cent of animal fat. It is strongly advised, therefore, that feed water shall always be filtered so as to remove any oils or grease.



WRITING MACHINE FOR TRANSMITTING A MESSAGE TO A DISTANCE.

be restricted in case of accident by diminishing this number on each line. The cables necessary for such transmissions are strung in the sewer by the care of the state. These apparatus may be seen in the large hall of the Comptoir d'Escompte at Paris, where they are in regular operation. The roller is seen moving forward at every instant and becoming gradually covered with numerous inscriptions.

The advices thus transmitted are most valuable. In the financial service, all the foreign quotations of the evening are furnished to the subscribers the next morning. The distributions continue thus from instant to instant during the entire day, and especially

* Copyright, 1893, by Geo. E. Hazlitt & Co.