SCIENTIFIC AMERICAN

[Entered at the Post Office of New York. N. Y., as Second Class Matter.]

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY AND MANUFACTURES.

Vol. XLIV.—No. 17. [NEW SERIES.] NEW YORK, APRIL 23, 1881. [$3.20 per Annum. [POSTAGE PREPAID.

THE CHICAGO POLICE TELEPHONE AND PATROL SYSTEM.

From time to time during the past year mention has been made in this paper of the inception and development of the police telephone and patrol system in operation in Chicago. A recent visit of our artist to that city enables us now to lay before the readers of the SCIENTIFIC AMERICAN the accompanying illustrations of the apparatus employed in this very important application of electricity to the mechanism of civil life and civic government.

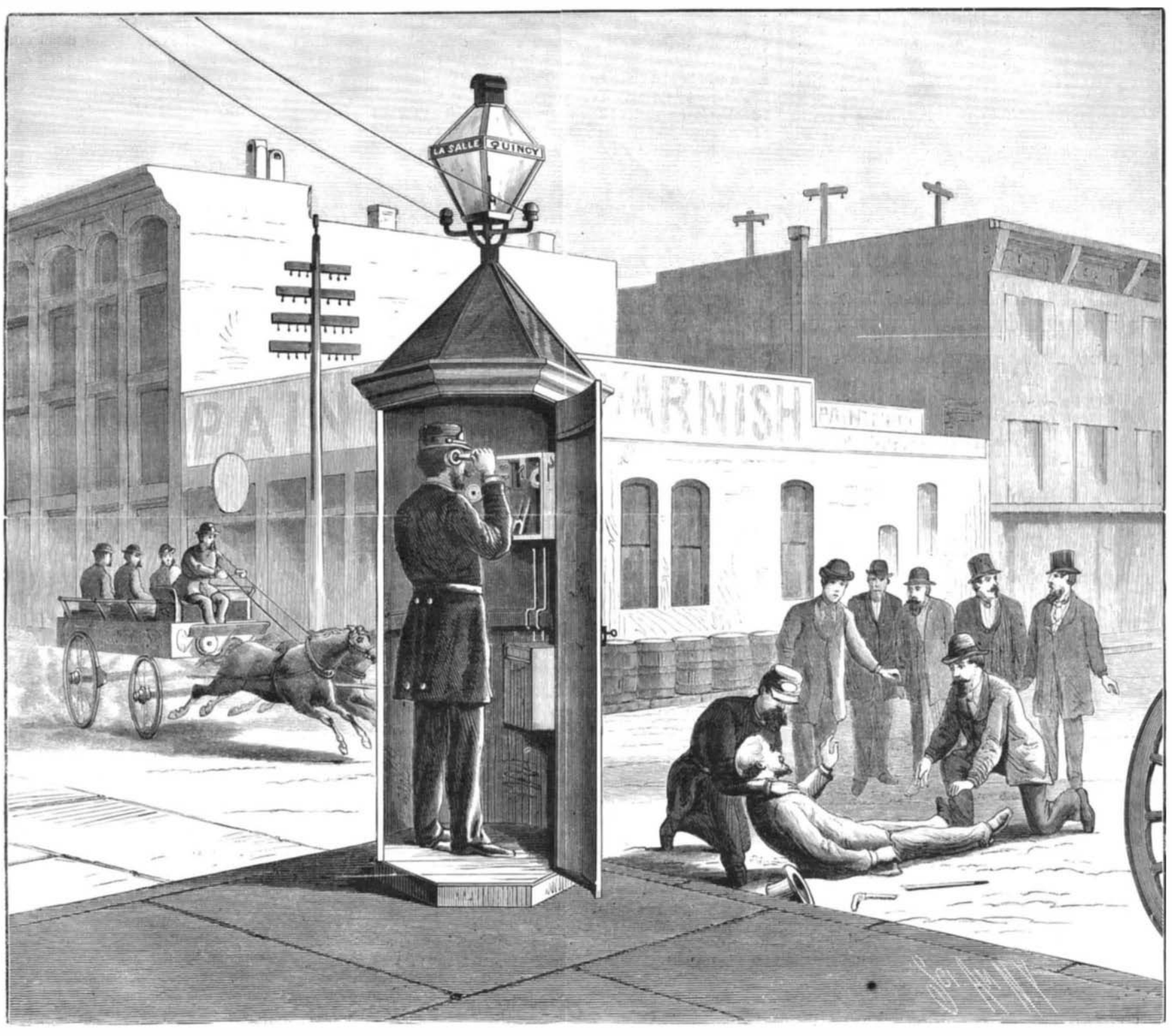
In every American city the police departments have been prompt to make use of the systems of electric communication which have been set up for social and commercial purposes; and in several instances special telegraphic or telephonic lines have been established for purely civic uses; but Chicago takes the lead in adopting electricity and electric communication as an essential factor of the police system, making it, perhaps, the most important and efficient element of the police service. When the entire area of the city shall have been covered by the system the analogy between the civic organization and the nervous organization of an individual animal will be curiously complete. The civic organization will become sensitive, so to speak, at every point, and the transmission of intelligence therefrom to the brain and subordinate nervous ganglia—that is, the central and district police stations—will be practically instantaneous.

The object of the system is twofold: to increase the promptness and efficiency of police attendance in cases of emergency, and to lessen the number of patrolmen and the consequent expense of the police force. The urgent need of a public watchman or constable at any particular point in any American community is altogether exceptional, and the tendency is therefore to give the policeman a long beat to traverse. The chances are that he will be out of the way when an accident happens; and evil-doers may take advantage of his known absence to disturb the peace or invade the property rights of citizens. To provide against such exigencies by largely increasing the number of policemen is obviously much less economical than to quicken the working of the police system by putting every patrolman within the reach of instant communication with the substation to which he is attachent or if need be with the central station or police headquarters, at the same time giving every orderly citizen, in case of need, the means of calling upon the same authorities with the least delay.

This is just what the Chicago system aims to do. At convenient points district stations are established, with relays of policemen and a horse and wagon always in attendance. The wagon carries a stretcher, blankets, and other appliances for receiving and properly treating sick or injured persons, lost children, or persons accused of crime. In telephonic connection with the district stations are public alarm stations, like sentry boxes, placed at suitable points along the streets. As will be seen in the large illustration, the alarm boxes are just large enough to hold one man, who may lock himself in should privacy or special security be an object. Keys to these alarm boxes are furnished to respectable citizens and are carried by all policemen, who also carry a releasing key, by means of which the general key can be withdrawn from the lock. This is to secure the attendance of the person giving the alarm and prevent possible trifling with the system, each key being numbered and the holder's name registered.

The artist has chosen an accident for illustration. The moment of such an occurrence the nearest citizen holding a key hastens to the alarm box, and by depressing the lever which projects from the signal box transmits the arbitrary call for help to the district station. Instantly a detail of three men with the patrol wagon hasten to the point whence

[*Continued on page* 258.]



THE CHICAGO POLICE TELEPHONE AND PATROL SYSTEM.

Don'ts for the Varnish Room.

The *Coach Painter* compresses a large store of valuable advice in the following brief article:

Don't use the bucket for a washbasin, or the "shammy" for a towel.

Don't touch your work with sweaty hands.

Don't flood your floor with water; have it *clean and dry every time.*

Don't wash off your work in the same room you finish it in.

Don't fail to use plenty of clear, soft water in washing off, for if the work won't stand a thorough washing, *you understand why,* and will not look for a lasting job.

Don't apply your finishing coat, or any other, until you have completely cleaned your work, and are sure it is perfectly hard and free from moisture.

Don't let the pumice in corners, and around and under the mouldings, escape your notice.

Don't apply a cold varnish on a warm job, or a warm varnish on a cold one.

Don't keep your varnish iu a damp or cold place.

Don't overload your work by laying two coats in one. A full coat *laid on evenly is all-sufficient,* and will give you a finer looking and more durable job.

Don't work your varnish too long, or leave it too soon. Become acquainted with it, and it will obey you first and last.

Don't say you haven't got a good, dry, tight, clean, clear, high-studded, and well-ventilated varnish room—*don't.*

Don't pour your varnish back into the can taken from; it will cause you trouble. Have a clean can for the purpose, and use it only after time is given to settle.

Don't keep your brushes in oil or turpentine; keep them in the varnish you use them for.

Don't use any but the best rubbing varnish (it is the cheapest in the end), and follow it with the best finishing.

Don't you know that a job turned out with a *fine finishing* varnish over a *poor rubbing*—although it may please you for the time being—will soon return to you for repainting and revarnishing?

Don't attempt to be a varnish maker by diluting your stock with oil or turps; don't meddle with it, but, if unsatisfactory, send it back to the maker, explaining the trouble.

Don't *always* lay the blame of a bad job on varnish, brushes, weather, and many other things; but look at home *—once.*

Verea's Calculating Machine.

The utility of a really practical calculating machine can scarcely be overestimated. A great deal of time has been devoted to this subject, and no little money has been spent in endeavors to perfect a usable machine of this character; but hitherto the machines have been too complicated, too bulky, and too expensive.

A short time since Mr. Ramon Verea, of 88 Wall street, New York city, patented a calculating machine involving an entirely new principle. It is comparatively simple and inexpensive, and is very compact. This machine cannot be intelligibly explained without engravings, but it may be stated that the essential features of the invention are a series of prisms perforated with holes of different sizes, and a series of tapering prisms which enter the holes more or less according to the size of the hole.

With this machine Mr. Verea can not only add and subtract readily, but he is able to perform multiplication and division with equal facility.

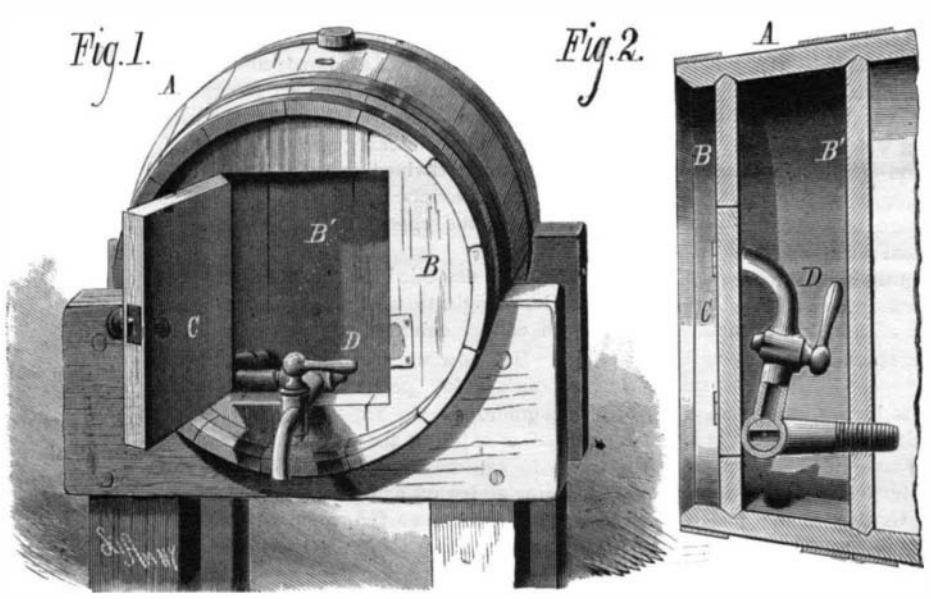
NEW COOLING CASK.

The engraving shows an improved cooling cask recently patented by Messrs. William Mainzer and John Singer, of this city. The improvement consists in providing the cask with two heads at one end, the outer head, **B**, being provided with a hinged door, C, which shuts the compartment inclosed by the outer head, B, the inner, B′, and the sides of the cask.

The faucet, D, differs from those in common use by having a joint which permits of folding it up into the compartment between the inner and outer heads. With this construction filled casks can be furnished to consumers with faucets applied to them, and can be returned to be refilled without detaching the faucets, so that the consumers will have no trouble in applying faucets, and waste of the contents by unskillfulness will be avoided.

The chamber between the two heads is wholly or partly filled with ice, which cools the liquid contained by the cask. Small kegs to which this improvement is applied may be used instead of bottles.

Further particulars in regard to this invention may be obtained by addressing Mr. William Mainzer, 200 Chrystie street, New York city.



COOLING CASK FOR BEER AND OTHER LIQUIDS.

AN EXPENSIVE FOX.—Six months ago a party of hunters tried to smoke out a fox that had taken refuge in a hole ten miles west of Somerset, Ky. In so doing they set fire to a bed of coal which has been burning ever since.

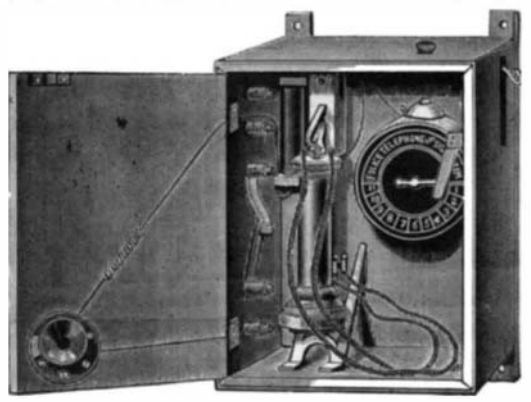
THE CHICAGO POLICE TELEPHONE AND PATROL SYSTEM.

[*Continued from first page.*]

the signal came. If the policeman of the post is near he unlocks the inside signal box, shown in Fig. 2, and communi-

SIGNAL TRANSMITTER.

cates with the district station by means of the telephone hanging within. The specific character of the disturbance which gives rise to the alarm, whether fire, accident, riot, or what not, can also be signaled mechanically by moving the lever to the proper position. It is proposed ultimately to have an alarm bell at each signal station, so that in cases of emergency the police may be instantly called to the telephones for instructions from the district or central stations.



TELEPHONE BOX.

In the meantime every officer while on duty is required to report by telephone, hourly or half hourly, the state of affairs on his beat; and his movements can be readily watched or directed by the chief of his station.

The system contemplates also the placing of signal boxes in private houses and places of business, either with or without telephonic connection. In the latter case the directions for the mechanical signals are given on the dial, as shown in Fig. 3. When a signal box is placed in a private residence a key of the house is left at the station under seal. When a night call is made—for burglary, for instance—the policeman answering the call takes the key and is thus able to surprise the intruder.

At present the number of alarm stations established in Chicago is about one hundred, and it is expected that the number will be more than doubled during the year. The practical working of the system is said to be in the highest degree satisfactory. The efficiency of the police in the districts covered has been nearly doubled, judging by the number of arrests made, while there has been a marked decrease in the number of crimes reported.

The system requires no great outlay in its first establishment, and its running expenses are very small. This makes it especially desirable for small towns having few officers for the territory covered. By means of the house and street alarm boxes the citizens can summon instant assistance should it be needed, thus enabling a few officers to do the work of many.

Boiler Explosions in 1880.

To the Editors of the Scientific American:

Messrs.: We notice in a late issue of your valuable journal a report of the number and kind of steam boilers exploded during the past year, taken from the Hartford Boiler Insurance Company's *Locomotive.* We saw the report in that paper and took no notice of it, but when it is given the widespread circulation of your paper, we feel as if a simple statement of facts should accompany it. In that report, locomotive and steam fire engine boilers are classed together, and come third in the list in number of explosions. The boilers used in the two engines are entirely unlike in construction, and out of the large number of steam fire engines in use in this country, we know of but one explosion occurring last year. That was a "drop flue" boiler in a *test trial* where the rules permitted "unlimited steam." No explosion of a steam fire engine boiler occurred last year while the engine was doing fire duty. As the report is given, it would convey the impression that steam fire engine boilers are dangerous, and thus discourage their use, while the facts prove the contrary. None of the fire engine boilers manufactured by us have ever exploded, and probably the *three* explosions of the kind that have occurred since the introduction of steam for that purpose (we believe there have been only three in all) are the results of culpable carelessness and not due to the construction of the boiler. An experience of twenty years, under a great variety of circumstances and conditions, convinces us that they are as safe as any that are made.

Very truly yours, L. BUTTON & SON.

French Gunboats for the Pacific.

The Nukahiva, the first of a fleet of gunboats building at San Francisco, Cal., for French naval service at the Tahiti Station, Pacific Ocean, has just been launched. The Nukahiva is built of Oregon pine, and is 72 feet over all; 64 feet on the keel; 20 feet 2 inches breadth of beam; 6 feet depth of hold; and will register 75 tons. She is copper fastened, and coppered 7 feet above the keel. Her draught will be about 8 feet, and it is expected that she will sail 10 knots an hour under a fair breeze and spread of canvas. Another boat of the same type and material is to be finished in the same yard by April 20, and others are contemplated.

RECENT INVENTIONS

An improved bouquet holder which can easily be attached to a coat or dress, and which holds the flowers securely without requiring them to be bound or held with a string before being inserted in the bouquet holder, has been patented by Mr. Thomas W. Ryder, of Terryville, Conn.

An improved bucket for chain pumps has been patented by Mr. Stephen F. Lockwood, of Stapleton, N. Y. It consists of the conical elastic disk having a flat top, straight inclined sides, and a circular recess in its lower face, the line of greatest circumference of the bucket being below the top of the recess.

Mr. Willis Carter, of Nanaimo, British Columbia, has patented an improved washing machine having two curved roller washboards, one fixed and the other pivoted at the bottom, and a rubber on the end of a pivoted bar arranged to vibrate between the washboards.

An improved shaft coupling has been patented by Mr. Charles E. Marston, of Dover, N. H. It consists of two semi-cylindrical blocks longitudinally grooved in their flat faces, and having midway in their grooves rectangular or flat seats that serve to hold the correspondingly flattened and shouldered ends of the coupled shafts. Interiorly tapering locking rings fit over the correspondingly tapering ends of the blocks to hold the latter together, and are held and adjusted in place by screws.

An improved muff has been patented by Alice Pass, of New York city. The invention consists in making a satchel muff with a gathered satchel opening upon the top, and with hand apertures below, arranged at right angles with the satchel opening. The outside of the muff is provided with a pocket.

Mr. P. A. O'Malley, of Brooklyn, N. Y. has patented a package fastener which facilitates the tying and untying of packages of mail matter and other materials. In this invention a flat plate is provided, to one end of which the tying cord is attached. The face of the plate is provided with fastening pins and a pivoted clamp, the arrangement of the parts being such that in tying a package the plate is laid upon the package, and the cord then passed around it, then under the head of a fastening pin on the plate, then around the package in a contrary direction, the extremity of the cord being then fastened on the plate by means of the pivoted clamp. We are informed that this invention has been used with great satisfaction in the City Delivery Department of the New York Post Office.