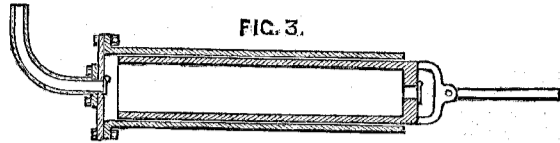


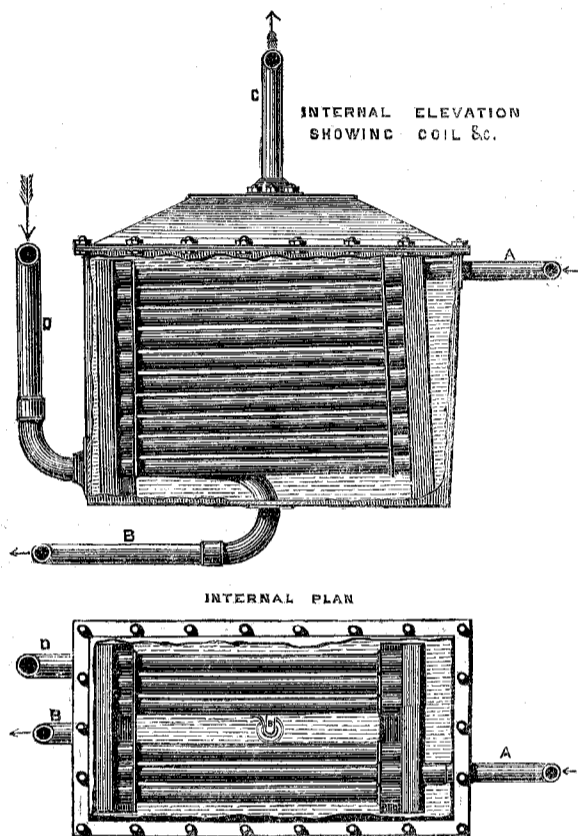
friction-wheel is suspended by a hanger H, turnable about centre. A shallow cylinder A is fixed underneath the carriage, and is connected with the vacuum tube by the pipe E. A piston moves in this cylinder, and when a partial vacuum is formed in it is drawn back, pulling the friction-wheel C away from the axle D, and thus stopping its motion and the ringing. The gong is sounded by the light rod I, Fig. 2.



It is obvious that this system is capable of very various modifications. By employing the motion of the train as the source of power, there is, practically, no limit to the energy with which the signal may be given. The employment of a gong, as arranged experimentally upon the London, Chatham and Dover Railway has the advantage of giving a signal of a nature totally different from any of the other sounds produced by the engine or train. It is also found that a small independently-working cylinder underneath the tender and guard's van gives a sharp and intermittent whistle. The employment of a fog horn gives a still more powerful sound. But, whichever is the means of signal chosen, it is clear that the air forms a safe and cheap medium of communication, and the apparatus which it requires is little liable to disarrangement from accidental causes.

HERRING'S WARMING APPARATUS.

The object of this apparatus, illustrated in our engraving, and manufactured by Messrs. Herring and Son, of Chertsey, is to utilise a portion of the heat of waste steam in warming buildings, and at the same time to condense the steam for the boiler feed. The



waste steam comes from the engine by the pipe A, passes through the coil, becomes condensed, and passes out at B. The water in the cistern is thus much heated, and passing out by the pipe C, which is part of an ordinary system of hot water pipes, circulates round the building, and returns to the tank by D.

THE DEPUTY MASTERSHIP OF THE ROYAL MINT.—We understand that one of the last acts of Mr. Disraeli's official life was the appointment of Mr. C. N. Freemantle, son of Sir T. H. Freemantle, of the Customs, as Deputy Master of the Mint. This post has been vacant since the death of Mr. Barton, in August last. If report speaks the truth Mr. Freemantle will not be a sinecurist.

THE INSTITUTION OF CIVIL ENGINEERS.—At the last meeting of this Society on Tuesday, the 1st inst., Mr. Charles Hutton Gregory, president, in the chair, the first ballot for the session took place, when thirty-one members were declared to have been duly elected, including ten members, viz., Mr. Charles Graham Blatchley, Saltash; Mr. George Broadrick, district engineer on the East Indian Railway; Mr. Thomas Forster Brown, Cardiff; Mr. Alexander Cato, chief engineer of the Coquimbo Extension Railway, Chile; Mr. John Henry Hartwright, late of Chester; Mr. John William James, Stratford, Canada West; Mr. Alfred Roberts, resident engineer on the Great Indian Peninsula Railway; Mr. Robert Roberts, engineer to the River Dee Company, Chester; Mr. Robert Watson, resident engineer, Victorian Railways; and Mr. George Woodbridge, chief resident engineer of the Eastern Bengal Railway; and twenty-one associates, viz., Mr. Samuel Parker Bidder, jun., assistant manager of the Victoria Graving Docks Company; Mr. Richard Shaw Brundell, East Indian Railway, Allahabad; Mr. Frederick Charles Bullmore, resident engineer on the Madras Railway; Mr. Thomas Procter Campbell, assistant engineer on the Jubbulpore line of the East Indian Railway; Mr. Elliott Scarlett Currey, late resident engineer at the Portishead Pier; Mr. John Gomes Vieira Dantas, Rio de Janeiro; Mr. Francis Gordon Davis, Gonnesa, Lead Mining Company, Eglesias, Sardinia; Captain Walter Mardon Ducaet, R.E., executive engineer for Reclamations in Bombay; Mr. John Stinson Farmer, Kilburn; Mr. Henry Augustus Fisher, surveyor to the Plumstead Board of Works; Mr. Thomas Penn Gaskell, Westminster; Mr. George Harrison, late Government Staff Ceylon Railway; Mr. John Thomas Holgate, late of the Rio Improvement Works, Rio de Janeiro; Mr. Edmund Lane, district engineer at the London end of the Great Western Railway; Mr. Henry Christopher Digges La Touche, Lahore and Peshawur Railway, India; Mr. Edward Antoine Sacré, Westminster; Mr. John Nidd Smith, surveyor to the Greenwich District Board of Works; Mr. Edwin Joseph Statham, Great Southern Railway, New South Wales; Mr. Thomas Selby Tancred, Canterbury, N.Z.; Mr. Henry Andrew Vivian, engineer and superintendent of the Coquimbo Railway, Chile; and Mr. William Webster, St. Martin's-place. The council, acting under the provisions of section four of the bye-laws, have recently admitted the following candidates students of the Institution:—Charles Toler Burke, George Ernest Faithfull, Richard Harrison, Killingworth William Hedges, Francisco de Salis Torres Homem, Joseph Prime Maxwell, William Henry Read, Henry James Samson, Herbert de Symons Skipper, and Charles Robert Western.

STREET SIGNALS, BRIDGE STREET, WESTMINSTER.

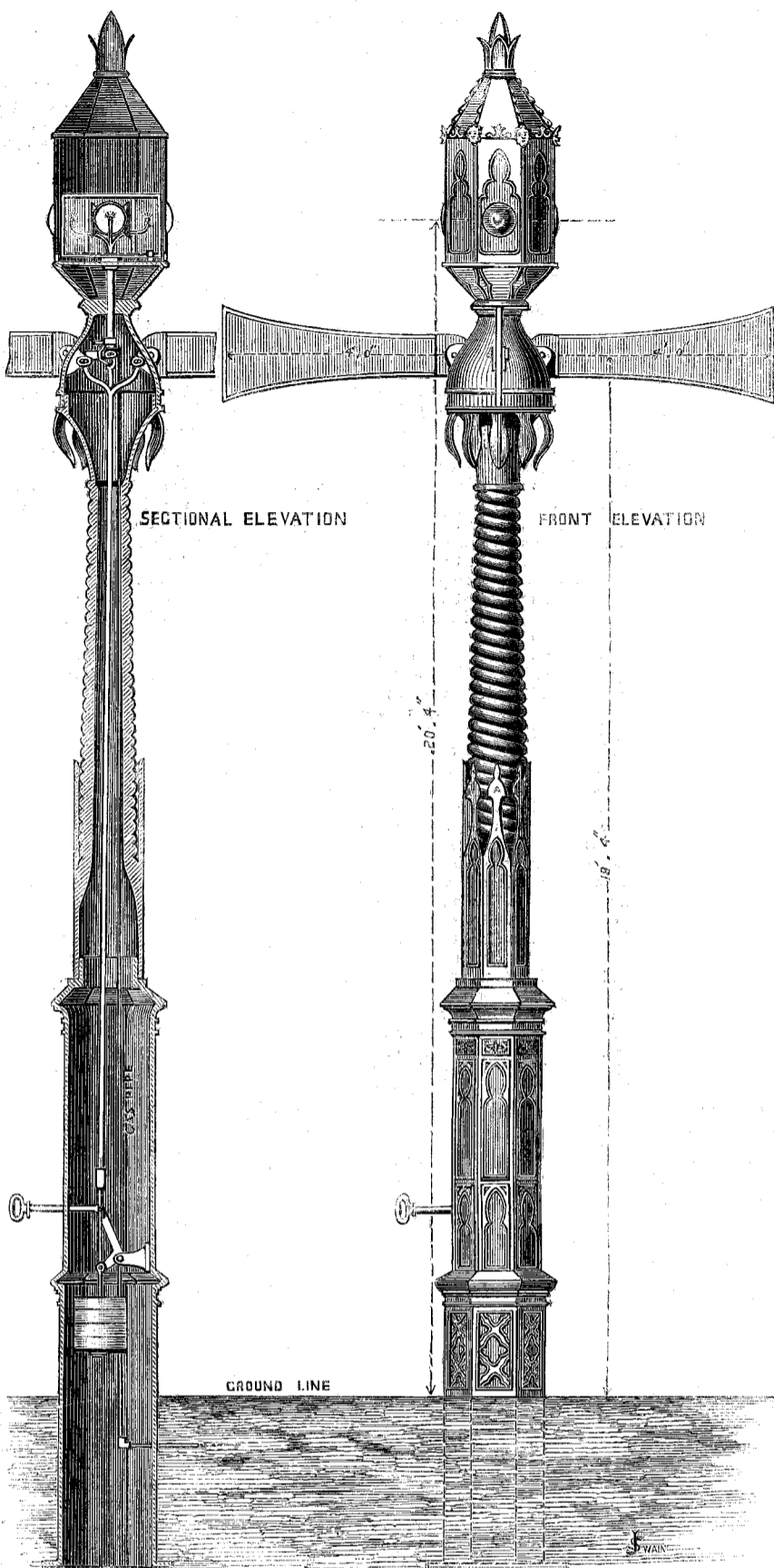
NOVELTY has been for some time, is now, and will be for some time to come, the order of the day at St. Stephen's, Westminster, and its purlieus. In the House itself some new men, and probably a good many new measures, may be looked for; and new private bills, a new underground railway, new Government offices, and, what we have to do with specially at present, a new method of street signalling for the regulation of the traffic.

Yesterday a handsome semaphore signal post, which has been in process of erection at Westminster for several days past, was uncovered after the manner of an inaugurated statue, and from to-day the attempt is to be made, in that locality, to regulate the street traffic by the description of signals now universally used on railroads. A few words may not be inappropriate on the history of this experiment, and descriptive of the situation, character, and intended purposes of this apparatus.

In 1866 a select committee of the House of Commons, Sir William Jolliffe chairman, took evidence upon the London City Traffic Regulation Bill, and reported. The inquiry resulted in the Metropolitan Streets Act, which came into force last year. Among the witnesses examined by the committee was Mr. Knight, superintendent of the South-Eastern Railway, who recommended the adoption for the regulation of street traffic, in so far as vehicles and horses are concerned, of the system adopted on railways, viz., by semaphore arms during the day, and by coloured lights at night. The principal recommendations he made were that principal streets should be dealt with as main lines of railway, and side streets as branch lines or junctions, and that the system should be adopted in all cases of streets wholly or partially closed for repairs for the guidance of the diverted traffic. With respect to the main streets he proposed that the intersections of thoroughfares, and other appointed places, should be protected by signals, as foot-crossings, the only signals employed to be the normal sloped arm of the semaphore by day, or green light by night, to indicate caution or slow pace over the crossing; and the horizontal arm, with corresponding red light, for danger or stop. The narrow side streets, it was proposed, should have signals at each end, indicating that the traffic was only allowed to pass in one direction. The advantages of applying the system to streets closed for repair, and to the routes to which the traffic is to be diverted, are sufficiently obvious. Since the adoption of the Metropolitan Streets Act the subject of street signals has received further consideration from Mr. Gathorne Hardy and Sir James Fergusson, lately of the Home-office, and Sir Richard Mayne, Chief Commissioner of the Metropolitan Police. Mr. Knight addressed a letter to Sir James Fergusson in February last, stating his views more elaborately with respect to the signals recommended, and offering also a number of valuable practical suggestions for the improved regulation, in other respects, of the street traffic. We have only to do at present with the portion of the subject relating to the signals. Messrs. Saxby and Farmer, railway signal engineers, were taken into counsel, and the result of the deliberations was an order by Sir Richard Mayne, with the sanction and under the authority of the Home-office, to that firm to erect an experimental semaphore signal-post at the junction of Parliament-street with Great George-street and Bridge-street, Westminster. This order has been executed, and the novelty is to-day in operation for the first time. In the event of the trial station working successfully—and there is no reason why it should not—a great and rapid extension of the system may be looked for.

The streams of vehicles, as most of our readers must know, are now controlled at the principal street crossings of the metropolis by police-constables specially appointed for that duty. The new system designs, practically, to supply substitutes for the policeman's arm. At present he raises his single right hand to a height of five or six feet above the ground level; his signal is only seen by one or two of the drivers nearest to him. By the mechanical contrivances now adopted, he is enabled, by a light pull at a horizontal bar to raise four arms at a height of 18ft. above the ground. Each bright red blade is 4ft. long and a foot broad, and is seen by every driver between Westminster Bridge and the Birdcage-walk in two directions, and between Whitehall and Old Palace Yard in others. Drivers will obviously, by such display, be enabled to adjust their pace to their common advantage, and to the convenience of foot-passengers.

Messrs. Saxby and Farmer may be congratulated upon their successful practical embodiment of the idea presented to them. As regards the design of the pillar, Mr. Hodgson, their manager, does not seem to have restrained himself by the rigid rules of any particular "order," but he has, nevertheless, contrived to present an imposing street ornament that will not be at all out of keeping with even such ornate decorations in stone and iron as are presented in New Palace-yard hard by. The pillar has a total height above the ground level of 24ft. The centres of the semaphore arms are 18ft. high, and the centres of the magnifying lenses above each arm, which show the red and green lights



corresponding with the positions of the arms, are 20ft. 4in. high. The lenses are 6in. in diameter, and the semaphore arms 4ft. long, 12in. broad at the outer end, reduced by a curve on each edge to 8in. broad at the necks. The pillar is octagonal in form at the base and the top, and the upper part of the shaft is round, with a spiral coil. At the bottom it is 1ft. 8in. in diameter, diminishing upwards at set stages, divided by projecting mouldings. The sides of the pillars are ornamented with gothic and diaper paneling. The crankwork of the semaphore arms is fitted in a cleverly designed swell, over which there is an upper neck, and above that an ornate light box, with a sloping roof crocketed on the angles, and surmounted by a pine-apple finial. The pillar is a very good casting, and of about five tons in weight. The mechanism is cleverly contrived, and so nicely adjusted as to secure rapid and very smooth and easy working. The changes of position can be given, without any strain in the effort, by a lady or a youth. The only notable novelties in the mechanical arrangements are those by which four arms, two of which are at right angles with the other two, and four lamp discs are acted upon at the same time, by a single pull or push of the connecting bar. The arrangement for changing the colour of the lights shown is also new and elegant. In ordinary railway practice the red and green eyes of the spectacle disc are seen by anyone who cares to look for them. This arrangement would have been unsightly in an ornamental street pillar, and the change of colour is effected in a neater mode. A skeleton cylinder, working on a vertical centre, is fitted with red and green glasses that interpose, as may be required, between the gas jets and the lenses that are fitted into the sides of the light box. The lens only is seen, and the coloured effect is produced without exposure of the *modus operandi*. The burners will be kept alight during the day by a small bye-pipe; an arrangement that will be alike convenient for sudden fogs, and in obviating the necessity for mounting to the top of the pillar, and for opening the lamp-box doors. A locked door is also fitted in the side of the pillar, which gives access to the bottom crank-work.

The pillar is coloured green, and relieved with gilding. The semaphore arms are painted scarlet, and have a gilt border. The pillar has one defect in its design that cannot fail to attract notice—the absence of four or more handsome brackets, carrying gas lamps for general lighting. The old lamps of the refuge look very dwarfish and seedy beside their new neighbours.

It should be stated that the pillar will only show three arms and corresponding lights, which will all be acted upon in the