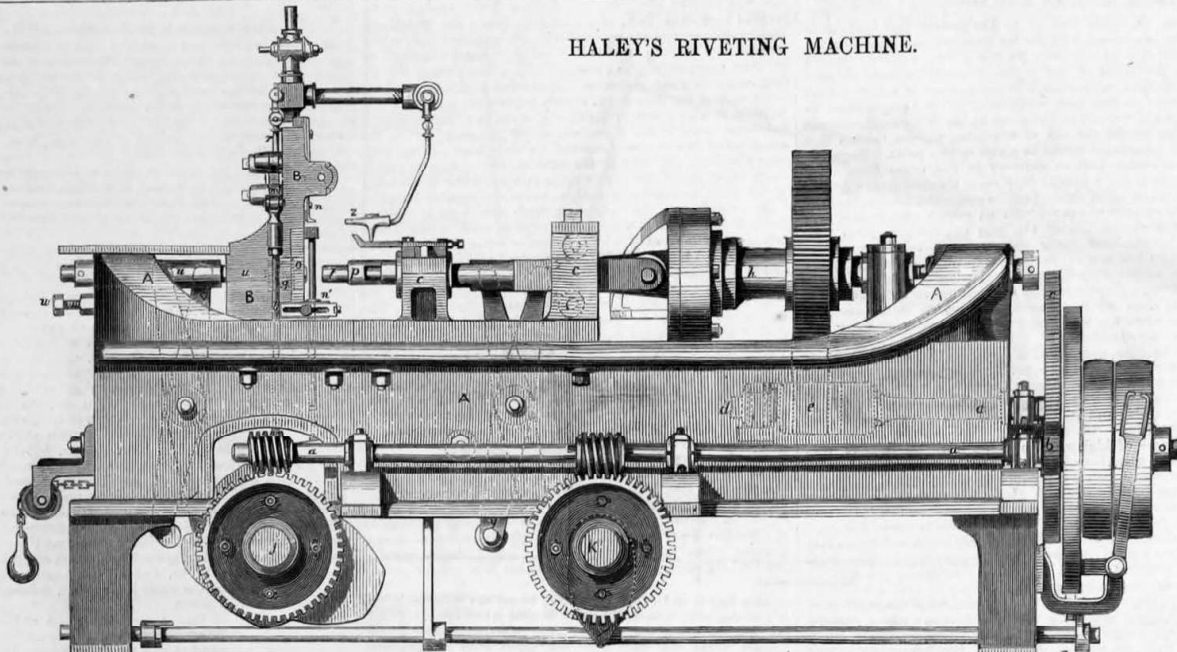


HALEY'S RIVETING MACHINE.



A TOUR IN THE PROVINCES.

CHAPTER VI. MANCHESTER.

This matter of fact city is about to put forth a blossom,—a flower with a corrugated iron calyx and crystal petals. Its roots are laid in the under-ground galleries of the mine; along the seams of coal and iron. The boughs and leaves which have elaborated the sap for this bud of beauty are chimney stalks and dingy, cellular-looking factories! I allude to the proposed "Exhibition of Art Treasures," the designs for which I have recently had an opportunity of inspecting.

Beyond the similarity in names, the Manchester Exhibition building will have little in common with the corrugated anomaly at Kensington Gore.

The Messrs. Young, who have furnished the designs for both buildings, were, doubtless, influenced in the determination of their style by the presumed requirements of each case. The result, in this instance, reflects much credit on the good taste and discrimination of those who represented the city of Manchester; and shows that although the Messrs. Young erected a barn for the Royal Commissioners at Kensington Gore, they can build palaces for those who want them.

Judging from the designs, which I had an opportunity of examining at the offices in Mosley-street, the building for the Manchester Exhibition of Art Treasures promises to be a really elegant and well-proportioned edifice. I hope soon to be able to give an illustrated description of it in the pages of THE ENGINEER.

I have this week been rambling through a number of places, and, of course, can only give a cursory view of each. First in order is the establishment of Messrs. W. and J. Galloway, at Knot Mill. This firm is best known as boiler-makers, manufacturers of screw-jacks, and rivets by patent machinery; steam-engines and mill-gearing are also undertaken by them to a considerable extent. The general appearance and management of the place is that of a steady-going, substantial, unpretending manufactory.

The first workshop I entered was full of the shafting and other details of a series of six gunpowder mills, which the Messrs.

Galloway are engaged in constructing for the Turkish Government. These mills are to be driven by a 60 horse-power condensing engine, which is also at present in hand. Each of the mills has two edge-rollers, weighing 13 tons the pair. To prevent the explosion of one mill communicating with another, they are each placed 70 feet apart, and, as they are all driven by the same engine, there is a continuous line of heavy wrought-iron shafting, extending underground to the distance of 420 feet.

The brake used for stopping the edge wheels of the mill is rather a curious contrivance—the accompanying illustration, Figs. 1 and 2, will explain its *modus operandi*. As a further security against explosions a cistern of water is placed over each mill, and so arranged that, in the event of an explosion taking place, all are upset simultaneously.

In a corner of this workshop the key-seats of the shafting were being cut by a modification of Nasmyth's Grooving Drill. In this case, however, the drill is carried at once to the whole depth of the cut before the lateral motion is given. It seems, however, to answer the purpose to which it is applied very effectively.

There is one rather startling peculiarity in the workshops of the Messrs. Galloway; all the tools, pillars, wall-plates, and brackets are painted a bright red. I did not enquire the reason of this strange fancy, but I certainly was rather alarmed at it, as everything had, at first sight, the appearance of being red-hot, and made me gather up my coat-tails whenever I passed them for fear of getting them singed!

The flooring of the principal workshops is supported by a transverse malleable iron girder, in the middle of which there is a socket for the top spindle of a cast-iron crane; as the planking of the floor is connected with this girder, the strain arising from lifting heavy weights by the crane is distributed equally over the four walls, in place of being pushed against particular points by rods and struts, as is usually the case.

The lathes in the turners' shop, in place of being placed along the walls beside the windows, stretch across the breadth of the room from wall to wall. This certainly economises space, but it gives rise to some awkwardness in the arrangement of the driving gear.

To obviate the difficulty of placing and removing the work in

a floor so obstructed, the windows have sliding panels in the lower half, so as to allow the exit and entrance from the combing yard to be effected without traversing the length of the shop.

In a half sunk floor adjoining the engine room I observed half a dozen rivet making machines at work. These machines are almost identical with those now constructed by Mr. Haley, of which a description and illustration are given in this number. The shop occupied by the rivet-making machines presents a very curious spectacle. The constant splashing of water and the lurid gleam of the hot iron rods, which are being handed about from the furnaces to the machines, seen through clouds of steam, give the place the appearance of a scene in a pantomime. The machines are entirely managed by boys, of whom there are, I should think, a score, with a man who is supposed to keep the machines in working order, and superintend the operations of the boys. The little fellows seemed to be in high spirits, whistling in chorus the unmistakable toodle-oodle of the "Ratcatcher's daughter." The rivets meanwhile were being struck off at the rate of two tons to each machine daily.

From the rivet-making department I passed to the shop where the screw-jacks were being made. These are made under a patent of Mr. Haley's, and are now pretty well known. A figure and rough description will be found among our advertisements. There is a very interesting tool in this department for cutting the worm-wheels required for the jacks; the teeth are cut by a single revolving cutter, the wheel turning one tooth at each revolution of the cutter. The depth of the cut is determined by a self-acting feed and slide, which carry the cutting tool forward after each entire revolution of the worm-wheel. The feed apparatus applied to most of the tools in this establishment is rather curious; it consists of a sort of parallelogram connected with the ratchets, by the action of which, one pall takes up the feed where the other leaves it, so as to make the action continuous; it will be readily understood from the accompanying sketch, Fig. 4.

MESSRS. J. AND W. GALLOWAY'S FRICTION BOX FOR POWDER MILLS.

CONSTRUCTED FOR THE TURKISH GOVERNMENT.

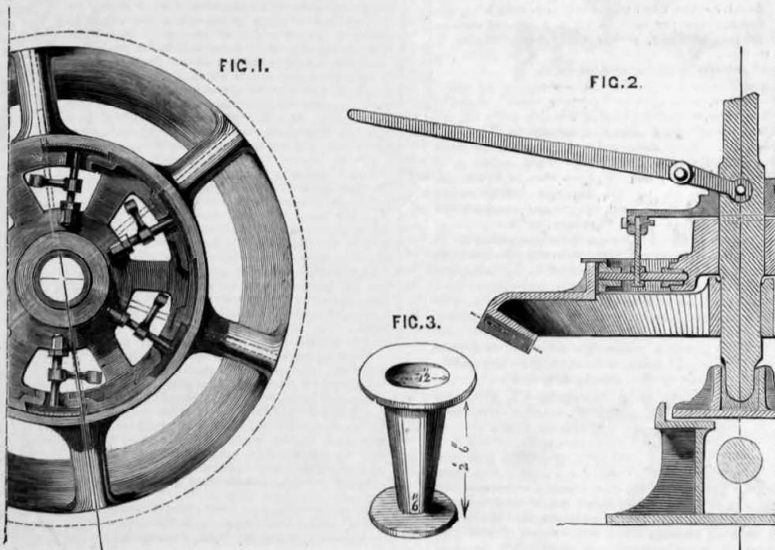
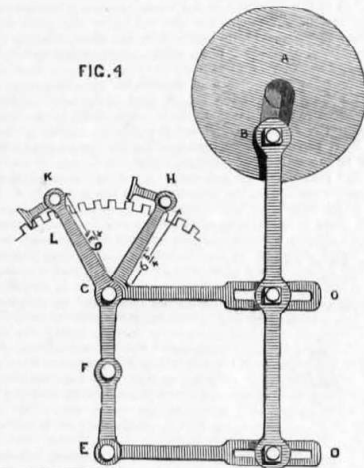


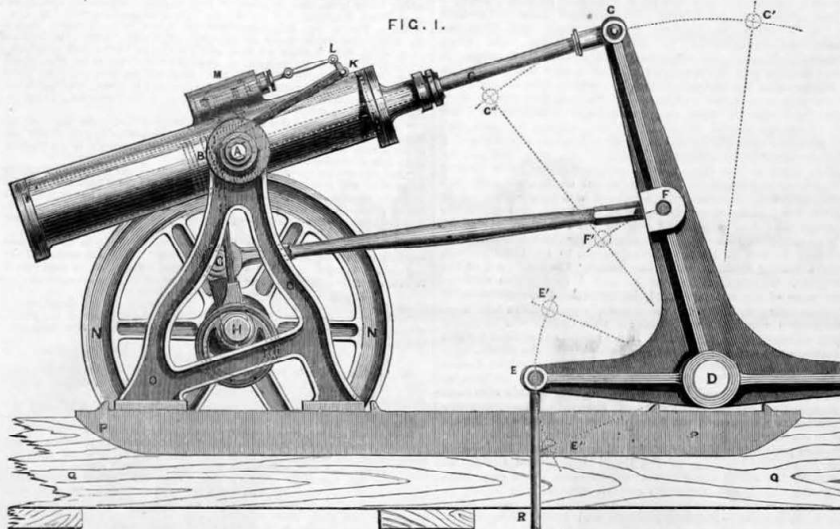
FIG. 4



A, is the driving wheel from which the feed motion is taken by means of the pin B, which is clamped in a slot of the wheel so as to form a crank. G and E are two fixed centres upon which the arms C, G, and D, E, are made to vibrate, by means of the pins C and D fixed in the slots in their extremities. The pin F connects the bent lever D, E, F, with the lever F, G, K, the hole at F is slightly elongated to allow the pin which is fixed in F, G, K, to play up and down in F, F, as the radial motion between the two parts requires. L is the wheel, in the teeth of which the palls play alternately so as to keep the wheel constantly in motion.

The Messrs. Galloway are extensive manufacturers of steam boilers for the Casten and other mills in the vicinity of Manchester. The speciality of these boilers is the conical vertical-water-tubes which they contain, and by which a greatly enlarged fire surface is obtained. The diameter of these tubes varies from six inches to a foot or more; they are not riveted, but welded

GALLOWAY'S PUMPING ENGINE.



with flanges for attachment to the top and bottom surfaces of the large flues of the boiler, in which they are placed upright, with the small end downward, so as to form a series of small cauldrons round which the flame from the furnace plays freely as it passes along the flue. This is a very cheap and effective means of increasing the fire surface, and the large demand for the boilers made by the Messrs. Galloway, shows that, in practice, the system is found to work advantageously. The sketch, Fig. 3 (see preceding page), shows one of these tubes. Of course they are made of various sizes to suit particular cases; the dimensions on the figure are merely intended to give a general idea of their size. In the boiler shed there is a steam riveting machine, by Goffor, of Dunkensfield. In this contrivance, steam is applied directly to the heading bars. It is, in fact, a steam-engine with a very wide cylinder and short stroke, with the valves worked by a hand bar. There are several advantages in the use of a machine of this nature, exclusive of the direct action of the steam, by which all intermediate gearing is dispensed with. Since the heading bar is simply the end of the piston rod, the pressure is given entirely through the elastic medium of the steam behind the piston; so that there is nothing to break or give in it. Such a machine as this, in conjunction with the rivet-making machine, would enable the same heat, which forms the rivet, to suffice for its heading-up in the boiler. For, although the rivets are made amid a deluge of water in the machines, they are all turned out sufficiently hot for this purpose if required.

There is a system of friction hoists used in this establishment which have the merit of being very simple. They consist of a winding barrel, having a wooden or paper pulley at one end; which, by means of a lever, is brought into contact with the surface of an iron driving pulley, the friction between the two surfaces being sufficient to lift any ordinary weights. I observed this friction apparatus applied to the lathe in the pattern-makers' shop, where it saved the use of a long leather belt, and was quite as efficacious.

Mr. Joseph Haley has favoured us with a drawing (see preceding page) of the rivet-making machine invented by him, and which has been so long in use at the establishment of the Messrs. Galloway, at Knot Mill. The patent of this machine has now expired, and we have no doubt, from the tried efficiency of the machine, that it is likely soon to come into very general use.

A, A, A, is the main frame; B, B, the die headstock in which the rivet is made; C, C, the headstock for carrying the heading bars.

a, a, is the first or driving shaft, with driving pulleys and fly-wheel on the end; the pinion b, secured against the fly-wheels, gears into the spur-wheel c on the intermediate shaft d, d; on the other end of this shaft, inside the frame, shown by the dotted lines, is secured a strong flanged pinion e gearing into the main spur-wheel on the pressure cam shaft.

On the first or driving shaft, a, a, are secured the worms working into the worm-wheels on the cross tappet shafts j and k, which pass under the frame and revolve in bearings at each side. These tappet shafts and the main cam shaft perform their revolutions in the same time. The shaft j has inside the frame a series of tappets, one of which, at each revolution, acts on a bowl on the lower end of the connecting rod l working the lever m, which depresses the cutter-slide n to cut off the iron required. Another tappet on the same shaft at each revolution causes a slide p to rise to the height of the cutters, the upper part of which is provided with a V piece called the cradle, in which the iron rests when cut off. The dotted line shows the receiving die o, which fits in a cylindrical hole directly opposite the heading bars p, p. This receiving die has a space round its outer part q, through which circulates freely a supply of cold water, conveyed into the headstock by the tube r, and escaping by a flat space cut from the top of the die, runs in a continuous stream down its face.

A number of bars are heated in a suitable furnace to the length of two or three feet, so as to allow six or eight rivets to be cut off.

The iron, introduced at the end of the machine indicated by the arrow, through an opening between the cutters, and striking against the adjustable stop z, the proper length of iron is given. When the cutter descends and places the required piece of iron in the cradle n, which has raised to receive it, the cradle-slide descends until the iron is opposite the hole in the receiving die, the heading bar with the heading die t is then forced forward by the pressure cam. When the heading die has hold of the iron the cradle falls, and the iron being forced to the depth of the receiving die the head is formed. A loose pin forms the bottom of the hole, which is forced back by the iron entering, causing the bar u and lever v to fall back against the adjusting screw w, which determines the length of the rivet. The moment the head is formed, the tappet x, acting on the lower end of the lever y, withdraws the heading bar; and

another tappet on the shaft j, coming in contact with the lower end of the lever r, forces forward the bar u and the pin within the die, throwing out the rivet into a hopper immediately beneath, which conveys it to an iron wagon under the machine.

A horizontal jet of water is continually poured on the cutters from the tube z, as also downwards on the heading die.

This machine differs entirely from any other rivet-making machine we know of, both in the mode of action and general arrangement.

To commence with the driving; in all machinery of this nature it has been the invariable rule to obtain the great power required at the moment of compression, by strong gear and heavy fly-wheels. In this machine, however, the gearing is comparatively light, and the fly-wheels especially so, not exceeding 2 feet 6 inches diameter, with rim under 2 inches square.

This wheel is, however, driven at a great velocity, which has a twofold advantage, first, as an equivalent for weight in giving the pressure; and, secondly, in rendering it extremely sensitive of the clip-break, which is very frequently applied by the "tenting boy," who keeps his eye fixed on the rapid action of the dies, and when perceiving any momentary obstruction, a slight pressure applied to the lever, which he constantly has hold of, either slackens the speed or stops the machine instantaneously, with as much ease as the driver controls or stops a docile horse.

Although these rivets are made in a deluge of water, they are thrown out hot enough to at once rivet in the plates.

The machine is adapted for rivets, from 1/4ths to 1 inch diameter. Of the ordinary boiler rivets, upwards of 30 cwt. per day can be turned off on one machine. The usual speed of the machine is about 40 strokes per minute for the two sides.

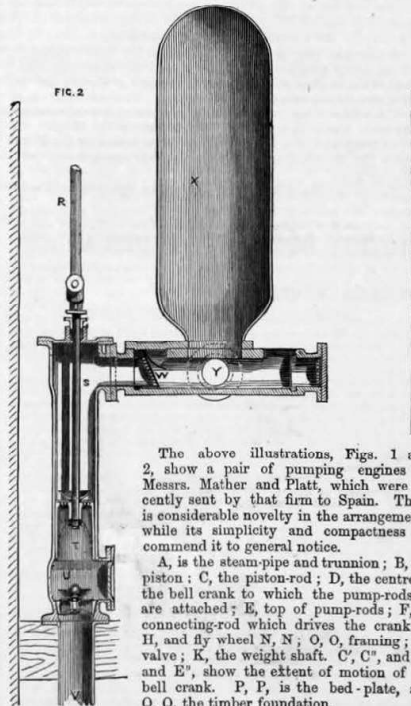


Figure 2 shows the details of the pumps; S, piston-rod; T, valves of piston; U, bottom valve; W, suction valve and pipe; X, air vessel; Y, delivery pipe; V, steel pipe.

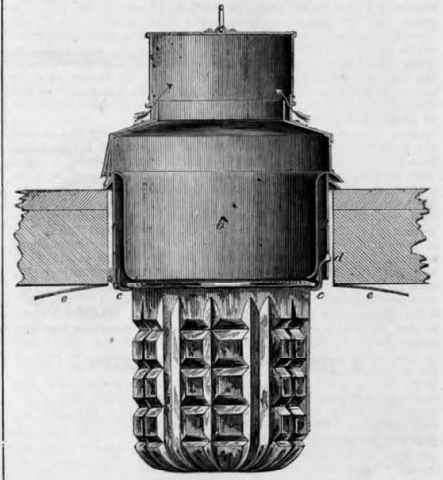
LONDON DOCKS.—The foundation stone of the new works at Shadwell was laid on Saturday. The works consist of a large basin or dock with an entrance to the river, and a communication lock from the new basin to the eastern dock; the entrance lock to be 350 feet long, 60 feet broad, and 28 feet of water on the sill of gates, capable of affording accommodation to the larger class of shipping. The cost of the undertaking is estimated at £700,000.

DEFRIE'S IMPROVEMENTS IN ROOF LAMPS FOR RAILWAY CARRIAGES.

PATENT DATED 20TH NOVEMBER, 1855.

In the construction of a roof lamp of a railway carriage there has hitherto been a glass at the lower part which enters the carriage; this glass is, by its upper edge or rim, fixed in a metal frame, and the frame is soldered to the upper part of the lamp, consequently when a glass is broken the parts have to be unsoldered and again soldered. And the glasses of such roof lamps have been made with plain or smooth surfaces, internally or externally, either by blowing or casting, and the consequence is, that the light is seen through the glass as a simple flame.

The present invention consists in applying to such lamps glasses which are cast in moulds formed with undulations, with a view to break up the surface of the glass into numerous prisms, which will cause the light to be broken up, and the glass is fixed in a ring which is made readily movable from the upper part of the lamp by a spring catch or by a sliding bolt; and on the interior of the carriage a concave reflector is used, through the centre of which, the glass of the roof lamp passes, and the light is thus reflected downwards and distributed.



The illustration shows a side view of the glass of a lamp being cast in a mould with undulations, and a longitudinal section of the lamp itself. a, b, are two metal tubes, one inside the other, which form the body of the lamp; to the outer tube a is hinged the dish ring c, and it is between this ring and the lower edge of the inner tube b that the glass is held. d is a spring or other catch for holding the ring in its place; e is a reflector attached to the roof of the carriage; it has a circular hole at its centre, through which the lamp passes. This reflector is so formed as to intercept the light, which otherwise would only illuminate the roof of the carriage; it reflects it downwards and distributes it.

THE IRON MINES OF EXMOOR.—The recent discovery of iron ore in the uncultivated wilds of Exmoor Forest, Devonshire, is expected to produce a complete revolution in the iron trade. Already has the district around felt the advantages in a commercial point of view, which an agricultural population contending against such adverse elements could not otherwise have obtained. The district has been taken by three of the largest iron companies in England, and their steam machinery and appliances, which are in a forward state of completion, will, it is estimated, raise from 200,000 to 300,000 tons of iron ore annually. The most remarkable specimen of ore yet obtained is the new pathos (white carbonate), which is used in the manufacture of steel, and for which English makers have hitherto been chiefly dependent on Sweden. A sample of this was dug from the moor, and sent to the Great Exhibition of 1851, by Mr. R. Smith of the Grange, Southmolton, where its value was quickly ascertained; but at that period it was scarcely believed that the lodes were rich enough to pay the cost of working. There are also found in great abundance the red and brown hæmatites, puddling ores, and the clay-bands peculiar to the districts of South Staffordshire and Wales. A sample of ore has just been analysed by Messrs. Schneider and Co., who have charge of one section of the mines, and found to contain 69.78 per cent. of metallic iron. The proprietors of the Ulverstone iron-works, Lancashire, have secured the principal share of the moor under a lease, and are rapidly sinking shafts by steam machinery to test the depth of the lodes. The remaining sections are in the hands of two South Wales iron companies from the neighbourhood of Merthyr Tydvil, viz., the Dowlais Company (late Sir John Guest's), and the Plymouth Company. The Ulverstone Company possess one-half of the south moor, the Dowlais about 2,000 acres on the west, and the other about half the latter quantity to the eastward. The immensity given to the employment of labour in the neighbourhood, and the settlement of a large population on the spot, has caused the erection of a church, which will be opened in August; and it is not a little remarkable that in digging the foundations a new lode of iron ore of rich quality and vast extent was found. The Ebbw Vale Company are at present working the iron mines on Brendon Hills, Somerset, a little to the east of Exmoor, and have obtained an act of Parliament for making a mineral railway to Watchet, which has been commenced. Two lines of railway, one from Exmoor to the sea-coast and Lymouth, and the other to Porlock, have been surveyed, but which will ultimately be adopted is as yet a matter of uncertainty.

THE CRYSTAL PALACE COMPANY AND SIR JOSEPH PAXTON.—At the last meeting of the Company the directors stated the general principles of the arrangement which has been entered into with Sir Joseph Paxton. He will give the company his general advice and assistance, for which he is to receive a small annual retainer fee, and he is to be paid for any further special professional services which he may be called upon to render. He is to occupy Rockhills as his private residence, free of rent, during his life, with an obligation to put and keep the premises in repair, and to pay insurance and all rates and taxes. The premises have been now valued, and are to be re-valued at the termination of the occupation, by two independent parties, and Sir Joseph or his representatives are to be allowed a certain agreed sum for permanent improvements, if any be made.

EFFECTS OF MACHINERY.—From recent accounts received from Australia, it appears certain that one chief cause of the increase in the supply of gold is the application of machinery. The advantage of a puddling machine driven by a horse, over the cradle and tin pin, is apparent even to the labouring digger. He cannot deny that for emptying his hole after rain a pump is far better than a bucket. A pump worked by a small steam-engine is an obvious improvement; and he only dislikes the quartz crusher because he sees that the capitalist comes in for a share of the produce; but he will soon learn that his own share is increasing, and we shall then hear no more of "a difference of opinion about machinery prevailing at the diggings."

BOMBAY, BARODA, AND CENTRAL INDIA RAILWAY.—The first sod of this line was turned on the 1st inst. at Surat, by Mr. Davies, of the civil service, Mr. Ford, the engineer in charge, officiating.

HAMPSTEAD-HEATH.

YESTERDAY a deputation from the various metropolitan parishes, headed by Lord Robert Grosvenor, M.P., and the Right Hon. Sir Benjamin Hall, M.P., and accompanied by several members of the Metropolitan Board of Works, waited, by appointment, on the Chancellor of the Exchequer in Downing-street, for the purpose of ascertaining how far the Government would be likely to aid in securing Hampstead-heath in perpetuity to the public.

THE MANCHESTER EXHIBITION.

HIS ROYAL HIGHNESS Prince Albert received yesterday at Buckingham Palace the members of the executive committee of the forthcoming Exhibition of the Art Treasures of the United Kingdom, consisting of the Mayor of Manchester, Mr. Thomas Fairbairn, chairman, and Messrs. Entwisle, Heron, and Stern; with Mr. J. C. Deane, the general commissioner, Lord Ellesmere, the president of the general council of the exhibition, was prevented by illness from being present, but the deputation was accompanied by Lord Overstone, who has, from the first announcement of the project, been one of its heartiest supporters.

SUEZ CANAL.

THE International Commission for opening the canal across the isthmus of Suez has adopted a number of resolutions, of which the following is an abstract:—

- 1. The Commission has rejected the system of the indirect line across Egypt, and adopted the principle of the direct communication between Suez and the Mediterranean.
2. It likewise rejected the plan proposed for supplying the maritime canal with the water of the Nile, and decided that it should be fed from the Nile and the Mediterranean.
3. The Commission discussed the advantages and inconveniences of a canal, with banks, continued from one sea to the other, and ultimately decided that the canal should have no banks in its passage through the Salt Lakes.

BOYDELL'S TRACTION ENGINE.

THE Board of Ordnance having ordered experiments to be made by their select committee with one of the traction engines, bought of the firm of Boydell and Clarke, the first took place on the 24th inst., at Woolwich, in hauling a heavy siege gun from the Arsenal, up Barrage-road, to Plumstead-common, and down the steep inclination to Waterman's-fields; and the second in hauling another gun of the same kind over a very soft marsh.

Without prejudging the merits of rival machines and implements at the approaching meeting of the Royal Agricultural Society at Exeter, the above experiments suggest several important considerations in awarding prizes, and especially in regard to time and economy. Let us suppose, for example, the usual cultivators to be Boydell's, Fiskens, Fowler's, and Lord Willoughby de Eresby's, then Boydell's traction engine propels itself to the field, and starts at once without delay. In the case of Fiskens's, again, horses are required to haul his portable engine to the field, take his anchors and tackle to the opposite headland, and return them again when the work is done.

CITY COMMISSION OF SEWERS.

At the last Court held, Mr. Deputy Peacock in the chair, a deputation from the united parishes of St. Andrew and St. Ann, Blackfriars, presented a memorial, complaining that deposits of manure and filth were allowed to remain for several days on Victoria-wharf, Earl-street, Blackfriars, and that those deposits were of a very noxious character.

METROPOLITAN BOARD OF WORKS.

On Friday the weekly meeting of the Metropolitan Board of Works was held in the Council-chamber, Guildhall, Mr. J. Thwaites in the chair. The financial statement showed a total general balance of £139,765 10s. 0d. A deputation from the parish of St. Giles, Chamberwell, waited upon the board in reference to the 142d section of the Metropolitan Local Management Act, relating to the bringing out of projections over fore-courts, shops, &c.

REJECTION BY THE GOVERNMENT OF THE SOUTHERN METROPOLITAN DRAINAGE SCHEME.

Yesterday morning a special meeting of the Metropolitan Board of Works was held in No. 2, Committee-room, Guildhall, City; Mr. John Thwaites in the chair. The Chairman called upon the clerk to read a letter he had received from the Office of Works, &c., relative to the southern main drainage of the metropolis.

under the direction of the Metropolitan Commissioners of Sewers in 1851. But the First Commissioner desires particularly to direct your attention to one of the objections made by Captain Bursard. He shows that if the sewage is discharged into the Thames at Plumstead, two hours before high water, which is the time proposed by your engineer, say at 11h. 16m. it will reach North Woolwich pier at 12h. 3m., Dockyard pier at 12h. 15m., Charlton Pier at 12h. 37m., Hookness at 1h. 3m. p.m., Victoria Dock at 1h. 25m., East India Docks at 1h. 40m. The high water then becomes slack at 2h. 12m. between the East and West India Docks, and it returns, reaching the East India Docks at 2h. 30m., Victoria Dock at 2h. 45m., Hookness at 3h. 5m., Charlton Pier at 3h. 33m., Dockyard pier at 4m., North Woolwich Pier at 3h. 52m., and Plumstead at 4h. 38m., thus oscillating between Plumstead and a point near the West India Docks for 5 hours and 23 minutes every tide.

By the Metropolitan Act of 1855, it is provided that, "the Metropolitan Board of Works shall make sewers and works for preventing all or any part of the sewage within the metropolis from flowing or passing into the Thames, in or near to the metropolis." But the scheme contemplated for the approval of the First Commissioner actually provides that the sewage shall flow into the Thames at a point within the metropolis. It consequently follows that, before any such scheme can be carried out, it will be necessary to call upon Parliament to repeal so much of the Act of last session as provides for the purification of the river Thames within the metropolis.

The First Commissioner feels that he cannot undertake to do this, and considering that the scheme is entirely at variance with the intentions of the Legislature, as set forth in the Acts which were submitted for his approval, to be his duty to return the plans which were submitted for his approval.

Several members expressed their surprise at the contents of the letter, which, after considerable discussion, was ordered to be taken into consideration on a future occasion.

THE THAMES EMBANKMENT. The following questions, proposed by the engineer, with reference to the resolution of the Board on the 26th inst., directing him to report on the subject of the Thames Embankment, were then considered, viz:—

- 1. Does the resolution require a report upon the Thames Embankment having reference to the construction of a low level sewer along, irrespective of other considerations of great importance; or does it involve a broad and comprehensive view of the whole subject?
2. Does it also include the embankment of the south side of the Thames, if it should appear to be connected with, and affected by, the northern embankment?
3. Does it require such a definite report as the Board may be enabled to adopt and carry out, inclusive of plans, an estimate of the works, and the probable amount of compensation to the owners of property affected by such works?
4. If so, should the primary object of such design be public convenience, or should it rather be so constructed as to render it to some extent remunerative?
5. What amount of accommodation should, in the opinion of the Board, be afforded to the public traffic by this route, so as to accord with a general design for Metropolitan street improvements?
After a great deal of discussion, Mr. H. Taylor moved, "That the engineer do report on the subject of Thames Embankment, limited to the paragraph in his report presented on the 26th of June."

PARLIAMENTARY INTELLIGENCE.

HOUSE OF LORDS.

MAIL SERVICE BETWEEN ENGLAND AND IRELAND. IN REPLY to the Marquis of CLANICARR, The Duke of ARGYLL said, the proposition made to the united railway and steamboat proprietors, with reference to improved postal communication with Ireland, remained under their consideration for a considerable time; but they had very recently returned to the Government a proposal, stating the conditions and expense upon which they would be ready to perform the service, and which had been referred to the Archdeacon Dowdeswell, and was now under consideration. It could not be expected that, under those circumstances, he should go into particulars either as regarded money or time. On a previous occasion he had stated that the main conditions laid down by Government were, that the whole journey between London and Dublin should be performed within the space of 11 hours, and that the departure should not be later than half past 7 o'clock in the morning. The Government were giving serious consideration to the subject, and would proceed with the negotiation as soon as the conditions had been arranged.

FACTORIES BILL.

This bill was read a third time and passed.

JOINT-STOCK COMPANIES BILL.

This bill was read a third time and passed with certain amendments.

DRAINAGE (PRIVATE ADVANCES) ACT AMENDMENT BILL.

The bill passed through committee.

SURVEY OF GREAT BRITAIN, &c. BILL.

The report of amendments was received.

HOUSE OF COMMONS.

REMOVAL OF THE NATIONAL GALLERY.

On the order for going into Committee of Supply, Lord ELCHO moved an address to her Majesty to issue a Royal Commission to determine the site of the new National Gallery, and to report on the propriety of the fine art and the archaeological collections of the British Museum, in accordance with the recommendation of the Select Committee in 1853. He reviewed the question, and urged the great advantage of combining with the National Gallery the collections referred to, suggesting advantages, or carrying out this combination, as furnishing grounds for further inquiry.

Mr. MILNES objected to further delay. He thought the scheme of the Government, besides being economical, possessed many advantages. The Chancellor observed that the question substantially resolved itself into two; first, should the National Gallery be removed from Trafalgar-square? Upon this point he thought the evidence greatly preponderated in favour of removal. Secondly was the site of Kensington-gore preferable to any other alternative suggested by Lord Elcho? He contended that, besides the matter of cost, this site was superior to any other sites proposed, and admirably adapted for a National Gallery. The Government proposed to give up to the Royal Academy the entire building in Trafalgar-square, and to erect a National Gallery at Kensington-gore for pictures only, taking steps to obtain plans by free competition, not limited to England.

Mr. TITE, agreeing that the present site of the National Gallery could not be maintained, thought that of Kensington Palace, if obtainable, if not, that of Hyde-park, preferable to any other alternative suggested by Lord Elcho. He recommended, however, the delay of the bill until the question, which would involve the expenditure of £1,000,000, could be carefully considered as a whole.

Mr. Alderman CURRIER objected to any part of Hyde-park being appropriated to a National Gallery, and thought the choice between Kensington-gore and Kensington Palace was determined by the comparative cost of each.

Mr. LABOUCHERE protested against Kensington Palace being selected as a site, any advantages obtained there would be dearly purchased, in his opinion, by the sacrifice of Kensington-gardens.

Mr. SPOONER supported the address, as a means of stopping the removal of the National Gallery, and because he thought Kensington-gore not a good position.

Lord J. RUSSELL thought there had been inquiry enough; that adopting the site of Kensington Palace would trench upon Kensington-gardens, and diminish the enjoyment of the people. He therefore came to the conclusion that, as far as site was concerned, the House could not do better than fix upon Kensington-gore.

After some remarks by Mr. G. VERNON, in support of the address, Mr. DISRAELI reminded the House that the issue before it related simply to an address to authorise a Royal Commission. If Kensington Palace was a model site, the grounds of difference between that and Kensington-gore were extremely narrow. He opposed the motion for a commission.

Lord PALMERSTON said that the starting point of the discussion was whether it was fitting to continue to lodge the national collection of pictures in the building in Trafalgar-square. He thought no reliance could be placed on it. Some of the sites suggested by Lord Elcho were liable to all the objections to which the present site was open, and the parks and Kensington-gardens were out of the question.

Mr. LOCKE thought it should be first determined whether the pictures were actually deteriorated in their present position, which he doubted. Upon a division, Lord Elcho's motion was carried by 133 to 145.

NATIONAL GALLERY SITE BILL.

Mr. SPOONER inquired whether the Government intended to proceed with the National Gallery Site Bill.

Lord PALMERSTON replied that, after the vote of last Friday, the Govern-