VARIABLE POWER HYDRAULIC APPARATUS.

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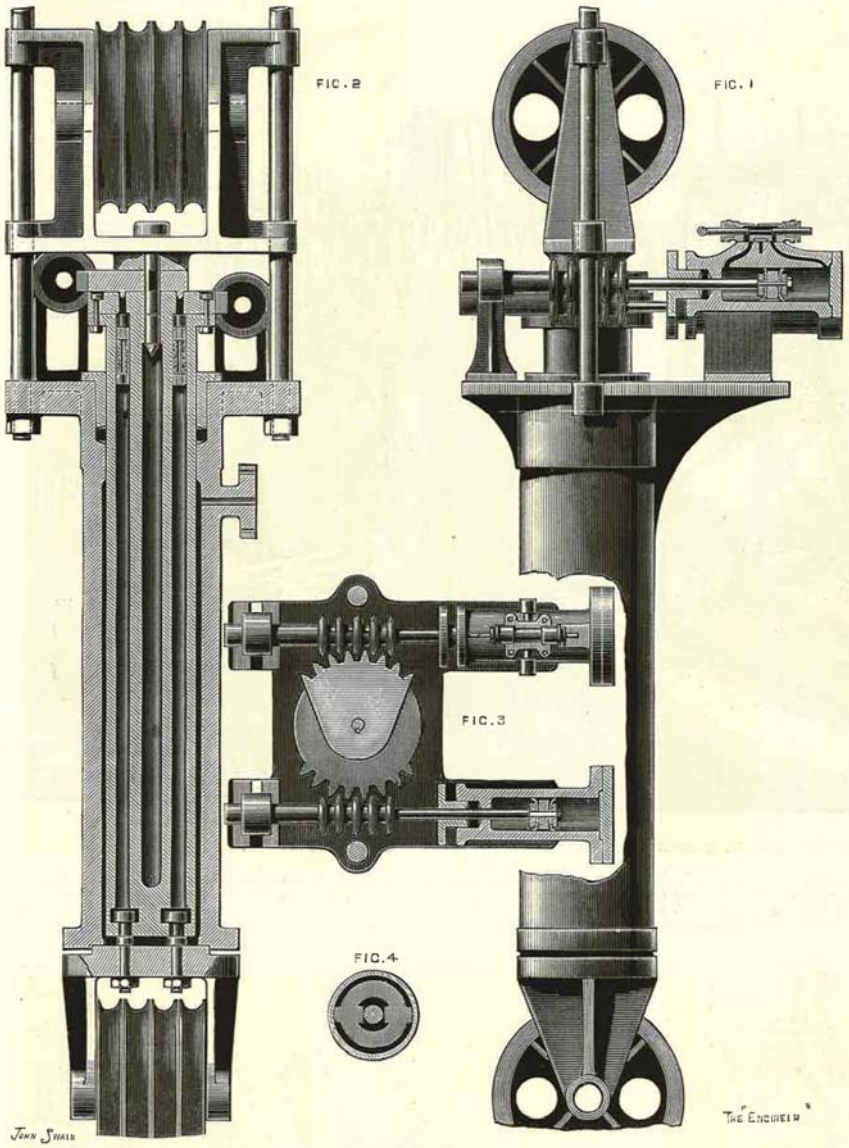


VARIABLE POWER HYDRAULIC APPARATUS.

THE accompanying engraving illustrates a variable power hydraulic apparatus recently brought out by Mr. Stannah. It is applicable to cranes, lifts, and hoists, and is of the form usually termed a "Jigger," the one illustrated being a three power machine for raising weights up to 4, 12, and 20 cwt. respectively. Two of these machines have been put up at the factory of Messrs. Harris, Mansell-street, Whitechapel. It comprises the ordinary cylinder with the usual stuffing-box, but in place of the ordinary ram there is employed a ram of cylindrical form open at the bottom end and bored throughout. Between this and an inner ram is a cylindrical stuffing-box. Both rams are provided at their bottom ends with a locking arrangement; this is acted upon simply by giving the ram a portion of a turn.

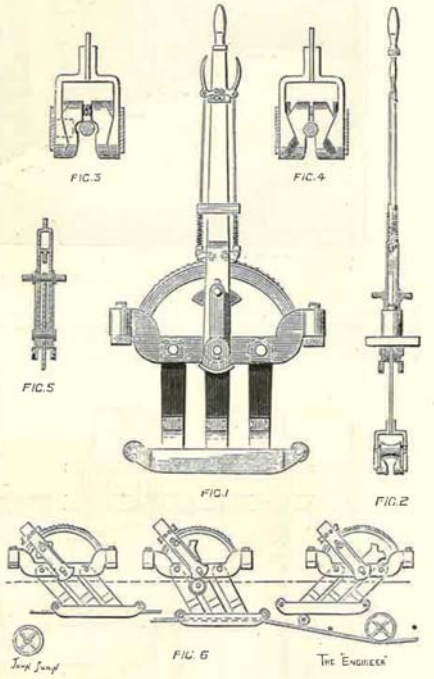
It will be seen the simplicity of this machine consists essentially in employing only one chamber for water, and consequently only one valve, the entire absence of concealed stuffing-boxes and the novel mode of holding the rams down when so required. To raise 4 cwt. the inner ram is released and the outer is held down. To raise 12 cwt. the inner one is locked, the outer ram set free, the cylindrical stuffing-box being held down in each case by the respective collars. To raise 20 cwt. both rams are released and the cylindrical stuffing-box is forced out with them. The crane is already working, and is in every way a complete success.

THE AMALGAMATED SOCIETY OF ENGINEERS AND THE EIGHT HOURS' MOVEMENT.

LAST week we gave a short abstract from the thirty-eighth annual report of the Amalgamated Society of Engineers, just issued to the members, in which we summarised the financial operations of the Association during the year 1888. It is not necessary to add very much with regard to this portion of the report, the main result being that owing to the lessened expenditure during the past year, chiefly in support of out-of-work members, the funds in the hands of the Society, which for some time past have been gradually shrinking, show a substantial increase, the balance now amounting to £158,769, or equal to £2 18s. 10d. per member, and showing a clear gain of £33,649 upon the year's operations. This, as already stated, is mainly due to the improvement in trade, which has relieved the Society from supporting the large percentage of unemployed that for several years past has been upon the books, the expenditure on this benefit alone showing a reduction of no less than £20,632 as compared with the previous year, and it will be interesting to give the total returns of unemployed members issued during the year 1888 as showing the steady progressive improvement in trade during the greater portion of that year. These are as follow:—January, 3220; February, 2610; March, 2473; April, 2332; May, 2257; June, 2092; July, 2421; August, 1932; September, 2113; October, 1930, November, 1845; December, 1641. Mr. Robert Austen the general secretary, has devoted one portion of his introductory remarks specially to the eight hours movement, and his remarks upon this question it will be interesting to quote pretty fully. He says that since the issue of their report in 1888 the above question has been brought prominently before the public in various ways. That eight hours per day is long enough for anyone to work will, he assumes, as a matter of course, meet with but few dissentients so long as the same amount of money is received for eight hours as for nine hours. This part of the question he therefore concludes may be dismissed as settled so far as the men are concerned, but of course he does not fail to recognise that the employers must also be parties to such a bargain; and rather than lose the day of eight hours, he urges that the representatives of the workmen should be prepared to advise the acceptance of a lesser wage for the time being, as he feels confident that the wages would soon return by the demand for a greater number of men, which would be the natural result of the shorter hours of labour. Mr. Austen then proceeds: "But the great and moot point is, shall the eight hours per day be made compulsory by law, or enforced by voluntary organisation, as was done in the obtaining of the nine hours? For ourselves, we prefer the latter, as we have a strong objection to Governmental interference with manhood labour as to the number of hours he or they shall work, and we are inclined to believe that there are many more of the same opinion. If we are to judge from circumstances as they have occurred, and from facts which have come to our knowledge during the last eighteen months, it may be asked, What has led to this belief? Various things. For instance, we have received letters asking why the Council did not take the opinion of our members and try to bring about the eight hours per day. This occurred before the present improvement in trade. Since then, when the Council has been doing all it could to obtain a rise of wages for our members and improve their position generally, and as a means to an end ordered the suspension of overtime, what occurred? Why, protests from branches against this and requests for the edict to be removed, so that they could work unlimited overtime, and this was not from a low paid district. Again, there were about 70,000 trades unionists represented at the Bradford Congress, and from the returns presented to that meeting only fifty societies and nine trade councils in the United Kingdom had expressed an opinion on the subject, whilst not more than 35,000 had voted on it, and these were not unanimous. These figures, Mr. Austin points out, do not by any means adequately represent the opinions of trades unions upon the question, and so far it is not quite clear as to what their real opinions are upon the matter. At the same time they should do all they could to hasten the good time coming when every willing worker should have a fair share and equitable payment for the work that had to be done. But in the meantime let them consider the matter in all its bearings, taking into consideration the hours worked by their continental and American cousins before they sought legislative interference in regulating the hours of labour in this country, and he is very emphatic upon one point, which is perhaps the most important of all as bearing upon the question of lessened hours of labour. "For the time being," he urges, "we should do all we can to dispense with systematic overtime, which is, and has been, one of the greatest evils we have had to contend with during the last twenty-five years; and when we have done all that we can for ourselves and by union and organisation with other trades, if we then fail we can as a last resource seek the aid of Parliament to enact a law of eight hours as a standard day's work for the working classes of the United Kingdom."

NEW CABLE GRIP.

IN the accompanying illustration are shown the various parts of a new cable grip, the invention of Mr. F. Schelp, jun., of St. Louis, Mo. Its mechanism consists of two jaws, grooved, and supported by a frame consisting of two horizontal bars connected at their ends. Secured to each jaw is a cam, while attached to the frames are plates, as shown, the forked ends of which are pivotted by means of pins. The *Street Railway Gazette* says it is claimed that by this arrangement a powerful and positive grip on the cable is secured, as the jaws move along



with the cable while gripping. In releasing, the jaws drop down with the cable, and allow it to travel through them on the line of the conduit pulley, thus doing away with all strain and wear while the car is standing still. A single movement of the lever is sufficient to grasp the cable, raising it at the same time with the jaws, so that they pass over the conduit pulleys. In crossing other cables, or in case of accident, the automatic detachment "brakes" the lever without releasing the clutch on the ratchet, a good idea of the mechanism of which may be obtained by reference to the illustrations.

THE CANALISATION OF RIVERS.

(*Continued from page* 249.)

General plan of the Suresnes dam.—Fig. 41.—In 1878 a new law was passed, providing for the execution of the necessary works for obtaining a permanent draught of 3·20 m. between Paris and Rouen. This section of the river has been divided into ten reaches by nine dams, each comprising: (1) A large lock, 12m. wide at the gateway, with a chamber 17m. wide and 141m. long useful for a train of boats; (2) a small lock 8·20m. by 50 m. long for single steamboats; (3) several navigable passes; (4) one, or several waste weirs. The works established before 1870 have been utilised as much as possible. A certain number of the old locks have been reconstructed or at least raised, and the gap which subsisted between Villig and Meulan has been divided by constructing a large dam at Méricourt. Several different models of dams, have been adopted for the new works; some like those of Bezons—with a fall of 3·30 m.—of Andresy—the fall of which is 2·84 m. and Mentot with its 2·81 m. fall, are composed of frames carrying rails; others like those of Suresnes—fall 3·27 m.—and Villig—fall 2·53—are composed of frames with sliding gates or Venetian curtains; and finally the dams of Meulan—fall 1·76 m.—Méricourt—fall 2·50 m.—La Garonne—fall 2·65 m.—and Poses—fall 4m.—are constituted of metallic bridges, to which are suspended movable, vertical bars, on which the rolling gates rest. Some weirs—Bezons, Meulan,