

**ENDOWED GRAMMAR SCHOOL, ODIHAM.**

(See page 260.)

In accordance with a scheme prepared by the Endowed Schools Commissioners, this school has been rebuilt, and was opened in the autumn of last year under the management of an influential Board of Governors, Mr. Slater-Booth being chairman.

The site is in that portion of the town situate east of the church, and running parallel to the south of the High-street known as "the Bury." The style of the building is that of the Domestic Tudor Gothic, the materials being red brick, pointed black, with Bath stone quoins, gable copings, finials, and door and window dressings. The roof coverings are old tiles, and the spirelet of the turret is surmounted by a gilt vane. The principal school-room, about 55 ft. by 20 ft., with open ribs sustaining the roof, plastered between the principals and purlins, is lighted by large traceried windows in the north and south gables, and two smaller windows to the east. There is a large class-room and dining-hall, and these three principal apartments are finished in red brick with a struck white joint, on a deep dado faced in Portland cement. The gasfittings in the school-room and dining hall are by Hart, Son, Peard, & Co., of London. There are three dormitories, lavatories and bath-room, besides the master's residence, which is fitted for a moderate family.

The original contractors were Messrs. Newman & Son, of Winchester, but consequent upon their failure, Messrs. W. H. Frampton & T. H. Burton, of Winchester, their sureties, were called upon to complete the works. The total cost of the building, fences, and enclosures, has been about £4,400.—*The Builder*.

**MESSRS. COLLIER'S PATENT RIVET MAKING MACH**

(See page 261.)

We illustrate on page 000 a new and very simple rivet making machine, recently patented by Messrs. W. Collier & Co., of the Greengate Ironworks, Salford, Manchester. One of the great defects in all previous rivet making machines has been their liability to form the head of the rivets out of centre with the shank, and one of the principal objects Messrs. Collier & Co. have had in view has been completely to obviate this, and render it impossible to make crooked headed rivets in the new machine. The general design of the machine and its mode of working will be readily understood from our engraving. The head or "snap" is carried in a vertical slide, which has a reciprocating motion imparted to it by an eccentric shaft driven by suitable gearing. The dies, five in number, are carried in a circular table and brought successively under the header or snap by an intermittent feed motion, which not only moves the table until the die is perfectly central with the snap, but locks it, and holds it firmly whilst the rivet is headed, so that should the iron get more to one side than the other it will right itself by pressure and not spring the table and form a crooked head. The motion for moving and locking the table is carefully protected from scale and water. An ejecting apparatus lifts the headed rivets out of the dies, and a simple self-acting motion picks them up and delivers them clear of the machine into a wrought iron trough or other suitable receptacle placed by the side of the machine. An apparatus is also attached for cutting the iron into the required lengths for making into rivets, with adjustable measuring stop to measure the pieces cut off the bars. Altogether this machine is a very simple, strong and substantial tool, and will probably meet a want that has long been felt in the rivet making trade. It will make thirty to thirty-five rivets per minute. Rivets made in this machine which lie before us, have truly centred heads, are well proportioned, and as far as form is concerned, leave nothing to be desired.—*Engineer*.

**NEW GAS TONGS.**

(See page 261.)

The importance of handy tools cannot be too highly estimated as aiding the convenience and economy with which labour may be used in building and erecting. In the case of pipe-fitting, especially quick and convenient working depends upon the fit and good grip of the pipe-tongs used for the purpose. Men with poorly fitting and inferior tools may be days effecting what could otherwise have been readily done in hours by men supplied with good tongs. Eventually, too, the joints may not be soundly made at all, owing to want of grip in the tongs.

In the ordinary course a very large number of tongs have to

be used, one for each size of pipes in order to give anything like a good grip of the pipe. The tongs that we illustrate is the invention of Mr. Reuben Rignall, and is being introduced in London by Mr. J. C. Fell. It is an adjustable tong, which will admit of being used for from four to six different sizes of pipes. It is of peculiarly strong and effective construction. The straight arm is adjustable by being capable of turning round its own axis in a swinging boss, which is pivoted in the jaw of the fixed arm with claw. By rotating this straight arm from left to right, or *vice-versa*, the size of the gripping jaw may be altered.

A great advantage resulting from this form of construction is that the grip of the hand upon the double arms is left as good as in the ordinary pipe-tongs; whereas in many of the new adjustable pipe-tongs there is but one arm left for transmitting the turning strain, and the jaw is allowed to grip itself as best it may. The grip from the double arms must be much superior to that of any with single arm only. Mr. Rignall is a practical mechanic, and thus has had an excellent idea of what was wanted, and the most simple and effective way of carrying the same into practice.

**ROLLING SHUTTERS.**

(See page 264.)

The main reason of the unfavourable impression the city of Philadelphia makes upon the visitor, is the enormous prevalence of the hinged wooden blinds swung outside the fronts of most of the houses. Aesthetically considered they are abortions, which disgrace the best efforts for architectural display. Their absence is the pleasing feature of those New York streets which are occupied with private residences; but it cannot be denied that the want of more protection than the window-glass affords is often felt, and a kind of outside shutter is frequently desired if it could be applied without the use of the Philadelphia blinds.

We afford an illustration on page 264 of a rolling shutter window, and can be simply pulled down or up by hand with very little exertion. There are three kinds made: 1st, the Venetian blinds, in which the slats are separated by pieces of rubber of uniform shape, and which are connected by strong elastic brass wire; 2d, the wooden shutters, in which the slats are in contact, and which are absolutely closed; the slats are connected by means of elastic steel straps with teeth, which keep the slats in place, and by which also the use of any screws is avoided; 3d, corrugated steel blinds, which are of one piece, but by their elasticity roll up like the others and are kept in place by very ingenious devices of the same corrugated form as the blind. They are made of the best quality of Sheffield steel, and are fitted with Wilson's patent friction rollers, causing them to run smoothly and evenly in the grooves, and doing away with the objectionable leather strips. The wood shutters and Venetian blinds are the only rolling shutters in the market put together without webbing or leather bands. These shutters were exhibited at Philadelphia, in competition with the English manufacturers, and received the highest award, taking two diplomas and prize medals. In Fig. 1 we illustrate the use of these Venetian blinds outside. The cottage represented has not only its windows provided with them, but also its piazza shaded, which adds greatly to its value, protecting those enjoying its airy situation more effectively against sun and rain-showers than the roof alone will do.

To illustrate the use and appearance of these blinds when used inside, we give in Fig. 2 a view of the interior of an extension provided with windows all around, and these windows provided with the Venetian blinds described, to moderate the light which in such situations may be often in excess.

We close by adding our personal conviction, based on experience, that the common hinged shutters are a regular nuisance. We found them attached to the rear windows of our residence, where they had been placed as a protection against burglary; we were however induced to remove them, and store them in the cellar, for several reasons; they suffer much from sunshine and rain, heat and frost, are never protected, and least when open; and therefore do not last long, and require painting and repairing very often, besides being quite unsatisfactory in the function they are intended to perform. The best proof of their ugliness may be realized if the reader will imagine that in the adjoined engravings such shutters were substituted for the blinds represented.

In regard to the price, for the wood shutter it is 50 cents per square foot, including apparatus for rolling them.—*Manufacturer and Builder*.