CHARLES DICKENS'S WELL

By A. C. Harrison, B.A., F.S.A. and J. E. L. Caiger

In 1856 Charles Dickens fulfilled his childhood ambition and became the owner of Gadshill Place at Higham which was to be his home from 1859 and where he died on 9th June, 1870. He paid £1,790 for it and, optimistically, estimated that it would require another £300 spent on it. This estimate was quickly increased to £1,000 and, as he was continually making additions and alterations to it—'positively the last improvement', the conservatory, being completed only a week before his death—the total amount must have been much greater. One of his first problems was that of water-supply and, on 6th June, 1857, he wrote:[1] 'Here is a very serious business on the great estate respecting the water supply. Last night they had pumped the well dry merely in raising the family supply for the day; and this morning (very little water having been got into the cisterns) it is dry again! It is pretty clear to me that we must look the thing in the face, and at once bore deeper, dig, or do some beastly thing or other, to secure this necessary in abundance . . . . If you get this, send me a telegraph message informing me when I may expect comfort. I am held by four of the family while I write this, in case I do myself a mischief—it certainly won't be taking to drinking water!' As a result of this despairing appeal the matter was clearly taken in hand at once, for on 6th July he wrote:[2] 'We are still boring for water here, at the rate of two pounds a day for wages. The men seem to like it very much and to be perfectly comfortable.' However, success was eventually achieved, for on 15th August he wrote:[3] 'At last, I am happy to inform you, we have got a famous spring!! It rushed in this morning, ten feet deep. And our friends talk of its supplying "a ton a minute for yourself and your family, sir, for nevermore." They ask leave to bore ten feet lower to prevent the possibility of what they call "a choking with sullage". Likewise they are going to insert "a rose-headed pipe"; at the mention of which implement I am (secretly) distracted, having no idea of what it means . . . can you get down on Monday morning, to advise and endeavour to decide on the mechanical force we shall use for raising the water?' By September, the mechanical force had evidently been decided for

[1] *The Letters of Charles Dickens*, ii, London, 1879, to Mr. Henry Austin.
[2] John Foster, *Life of Charles Dickens*, ii, London, 1876, 234.
[3] *Op. cit.* in note 1, 25, to the same.

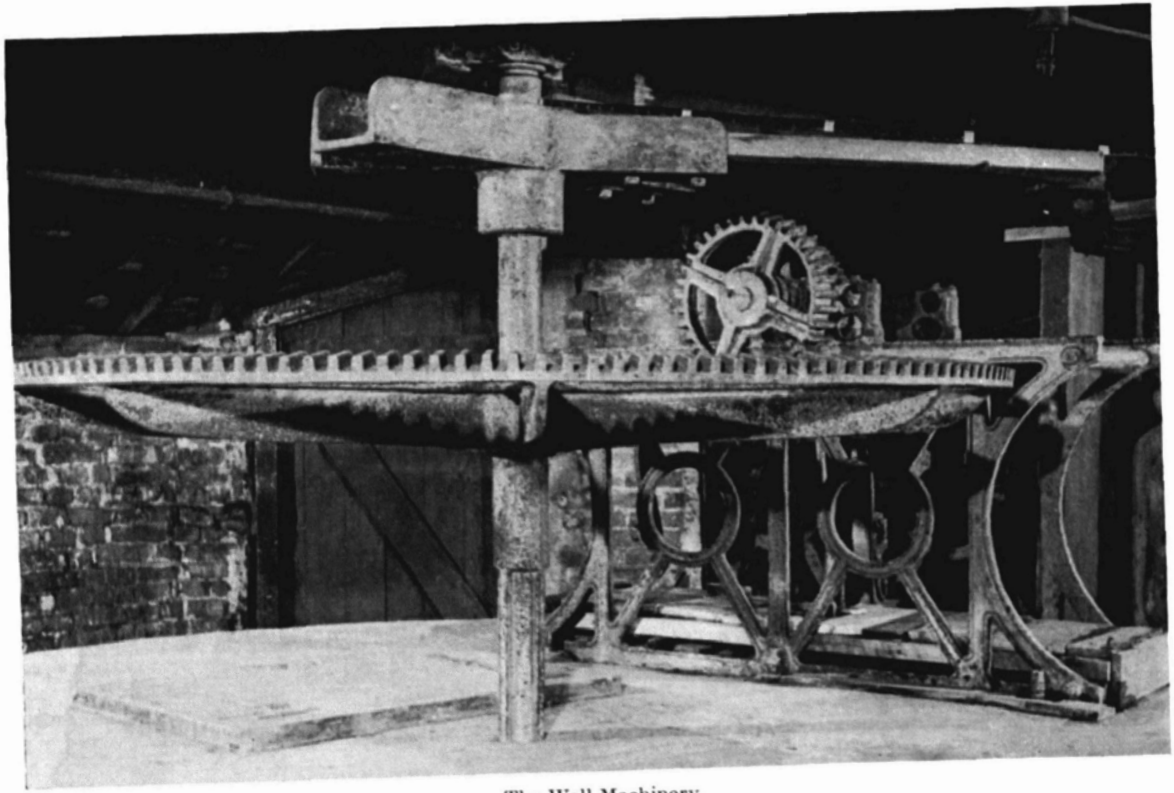
he wrote on the 24th:[4] 'Here are six men perpetually going up and down the well (I know that somebody will be killed) in the course of fitting a pump: which is quite a railway terminus—it is so iron and so big. The process is much more like putting Oxford Street endwise and laying gas along it, than anything else. By the time it is finished, the cost of this water will be something absolutely frightful. But of course it proportionately increases the value of the property, and that's my only comfort.' Three days later in his last reference to the well he remarked that:[5] 'Five men have been looking attentively at the pump for a week, and (I should hope) may begin to fit it in the course of October.'

There is a tradition, not mentioned by any of the authorities, that after the completion of the well, Dickens was irrationally convinced that the water was contaminated in some way, and was only comforted by the ingenuity of the then Master of Watts' Charity in Rochester, who secretly introduced into the well the body of a dead cat which he later triumphantly resurrected![6] That Dickens was right in supposing that the well would increase the value of the property is shown by the fact that when the house was sold after his death the reserve was four times the original purchase price.

The well-house itself stood on one side of the stable-yard next to the new stables which Charles Dickens built and which are now converted into classrooms for Gad's Hill Place School. It was a square building with a beamed and tiled roof. The well itself was of great depth, variously given as 230 ft. and 217 ft., and was dug through the bed of Thanet sand deep into the underlying chalk. It was still in use in 1888 when F. G. Kitton saw 'Major Budden's mare Tell-Tale busily drawing water',[7] but seems to have become redundant about 1900 when mains water reached Higham. In 1957, the structure of the well-house became unsafe and was pulled down. The well itself was filled in and the school gymnasium extended to cover the site. Fortunately the machinery was preserved and a detailed study of this forms the second part of this paper.

The authors wish to express their most grateful thanks to the Misses G. and E. Burt, the present owners, and to Miss R. Hewlett the headmistress of Gad's Hill Place School for their co-operation, as well as their appreciation of the work of the late Miss W. Burt, whose notes on the well were most generously made available to us.

[4] Foster, *op. cit.*, in note 2, 234.
[5] Foster, *op. cit.*, in note 2, 235.
[6] A version of this story appears in *The Mystery of Charles Dickens's Well*, by A. W. Barnes, Strand Magazine, February 1927. I would hesitate to mention it, had it not been vouched for by the late Edwin Harris, the Rochester antiquarian, who was generally a most reliable source.
[7] F. C. Kitton, *The Dickens Country*, London, 1905, 223.



The Well Machinery.

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PLATE II

View down the Well.

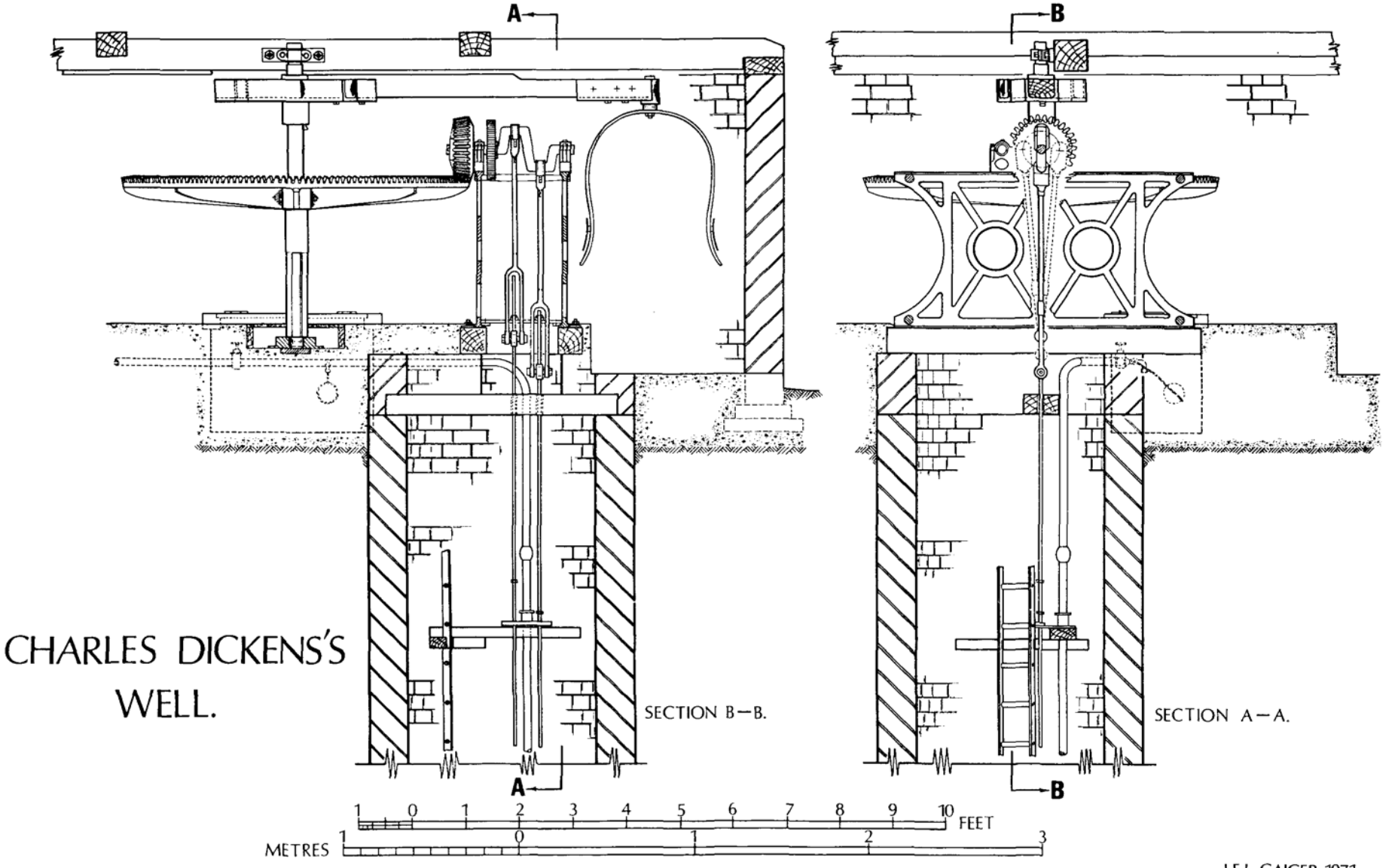

Fig. 1.

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Description of the Horse Engine

The terms horse engine, horse gear, whim or gin have all been used to describe a certain class of machine where a horse or pony provided the motive power. The basic arrangement consisted of a lever, attached to a vertical shaft being drawn round by a horse walking in a circle; mechanical power being produced by the gears to which the lever was attached. Early machines, however, did not possess any gears. They were constructed of wood and derived their power from the action of ropes passing round drums and over wheels. Machines of this type were frequently used in the mining industry in this country towards the close of the eighteenth century. The machine that formerly stood inside the well-house at Gadshill Place was sophisticated in design and consists of a vertically mounted axle, with a lever arm, which as they revolved set suitable gearing, cranks and pump rods in motion. The rise and fall of the pump rods operated the pumps located down the well shaft. The apparatus was used to pump water up to a storage tank at roof-top level in the main building and this supplied the domestic water needs of Gadshill Place.

The component parts of this engine are shown in the two sectional views (Fig. 1), which also detail its method of construction. The vertical axle has a channel iron attachment near its upper end into which an oak lever is securely bolted. Suspended from the outer end is a yoke fitting into which a small horse or pony could be harnessed when pumping work was necessary. Extra turning effort could be manually applied by inserting a wooden beam into either of the two smaller openings on the channel attachment. Keyed onto the middle of the axle is a large cast-iron bevel wheel containing 160 teeth which drove a small bevel wheel containing 35 teeth also secured onto the end of the crankshaft by a key. This gearing arrangement drove the crankshaft at an increased rate of 4·5 : 1, i.e. for every circuit the horse made round the track the crankshaft turned 4½ times. The large 48-teeth spur gear mounted directly behind the small bevel wheel did not mesh with any other gear wheel and apparently served no purpose.

A sturdy cast-iron frame of plain geometric design, was positioned across the well head and securely bolted down to oak timbers on the floor. The bearing blocks, housing the two-throw crankshaft, are mounted on top of this frame. One set of bearing holes contains no shaft but may have been used for another purpose. The frame is of heavy cross-section, purposely designed to resist the severe stresses imposed upon it during pumping operations. Two connecting rods, driven from the crankshaft, were coupled to the iron pump rods which extended down to the lower part of the well and directly operated the pumps. Each pump rod made a complete stroke of 8 in. Although it

was not possible to examine the pumps, in all probability they would be mounted on a wooden platform a little below the maximum water level and be of the conventional deep well lift type. At intervals of approximately 15 ft. stout oak bearers were set horizontally into the brickwork sides of the well shaft upon which bearing guides were fixed to restrain the pump rods and keep them correctly spaced apart at 6 in. Additionally, these bearers supported the long and heavy water delivery pipe, made of lead, which ran from the pumps up to the well head and then on to the storage tank in the house. At ground level the pipe turned and fed a small cistern recessed into the well-house floor. Associated with the oak bearers supporting the lead delivery pipe were others, at the same levels but offset to them. There is some evidence remaining to suppose that these bearers once supported a vertical wooden ladder. Such a provision would almost be a necessity, in order to provide a safe means of access to all levels of the well shaft for the periodical task of greasing the pump rods and guides and also for maintenance to the pumps.

Two features calling for comment, are the apparently redundant spur gear mounted on the crankshaft and the spare set of holes in the bearing block. It is suggested that possibly a separate iron shaft, on which was mounted a pinion gear, was kept reserved elsewhere and when the need arose, this shaft was fitted into the spare bearing block holes and the pinion meshed with the redundant spur gear. By this means the horse engine could be adapted to operate as a temporary hoist for lifting work over the well shaft.