

HENRY CHERRY.  
No. 120,940.

Improvement in Pulley Blocks.  
Patented Nov. 14, 1871.

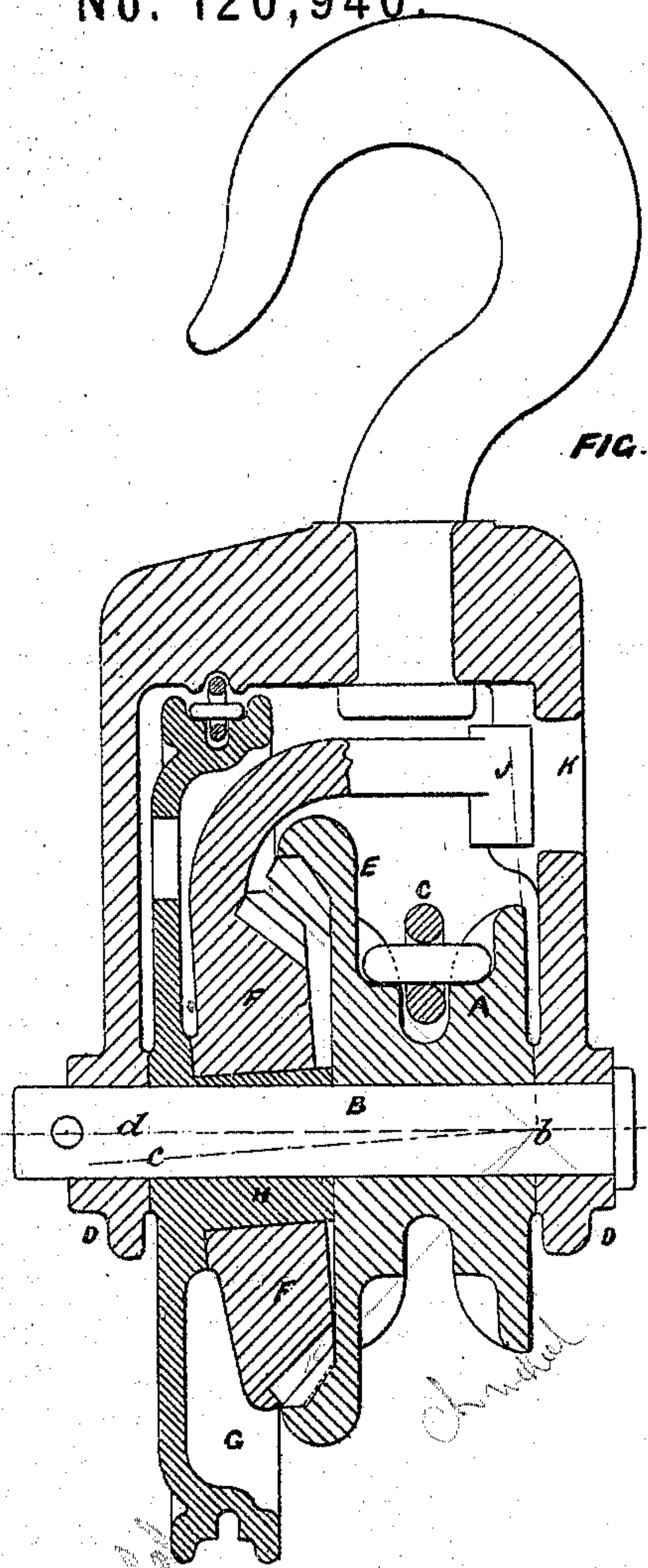


FIG. 1.

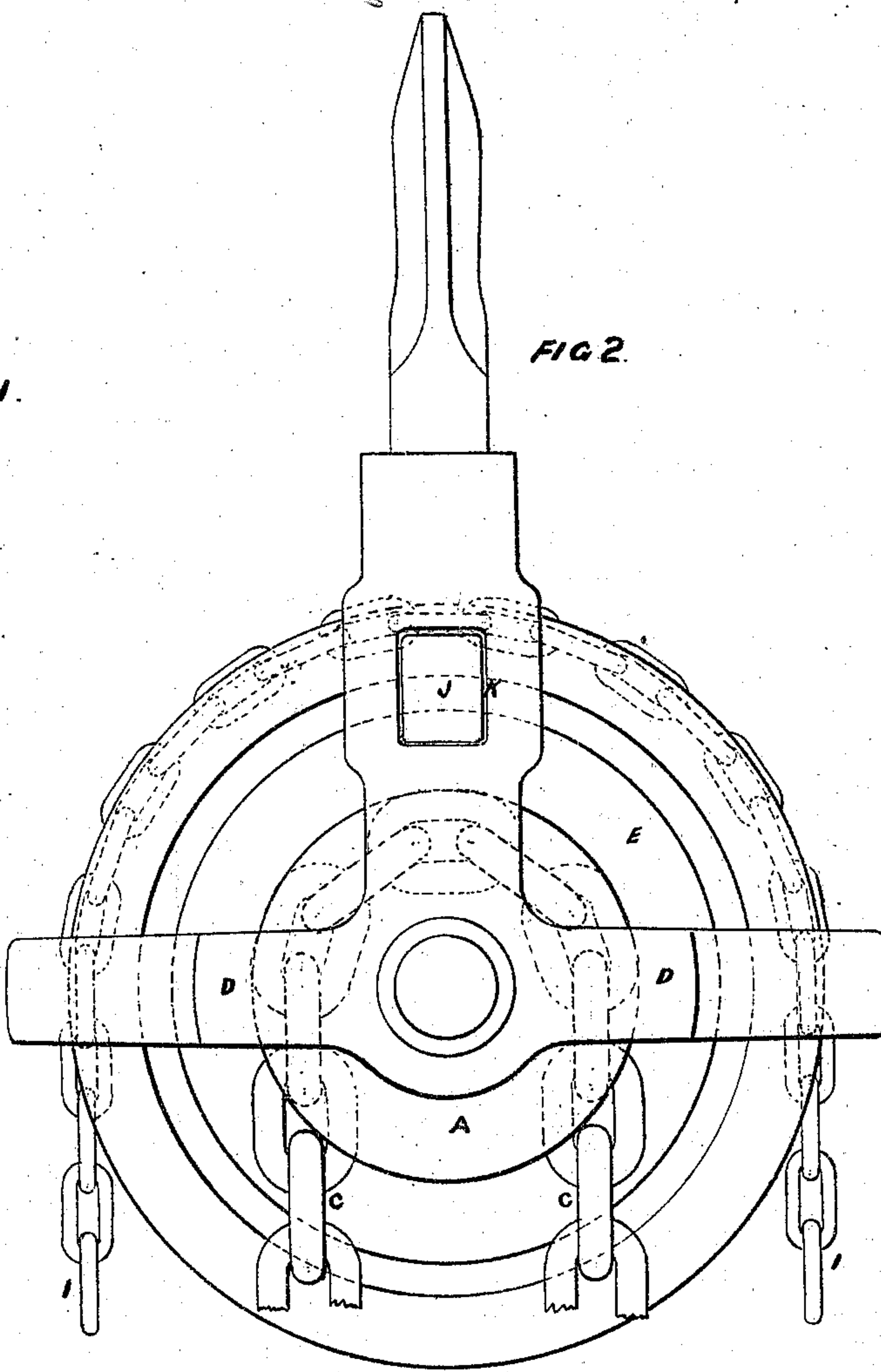


FIG. 2.

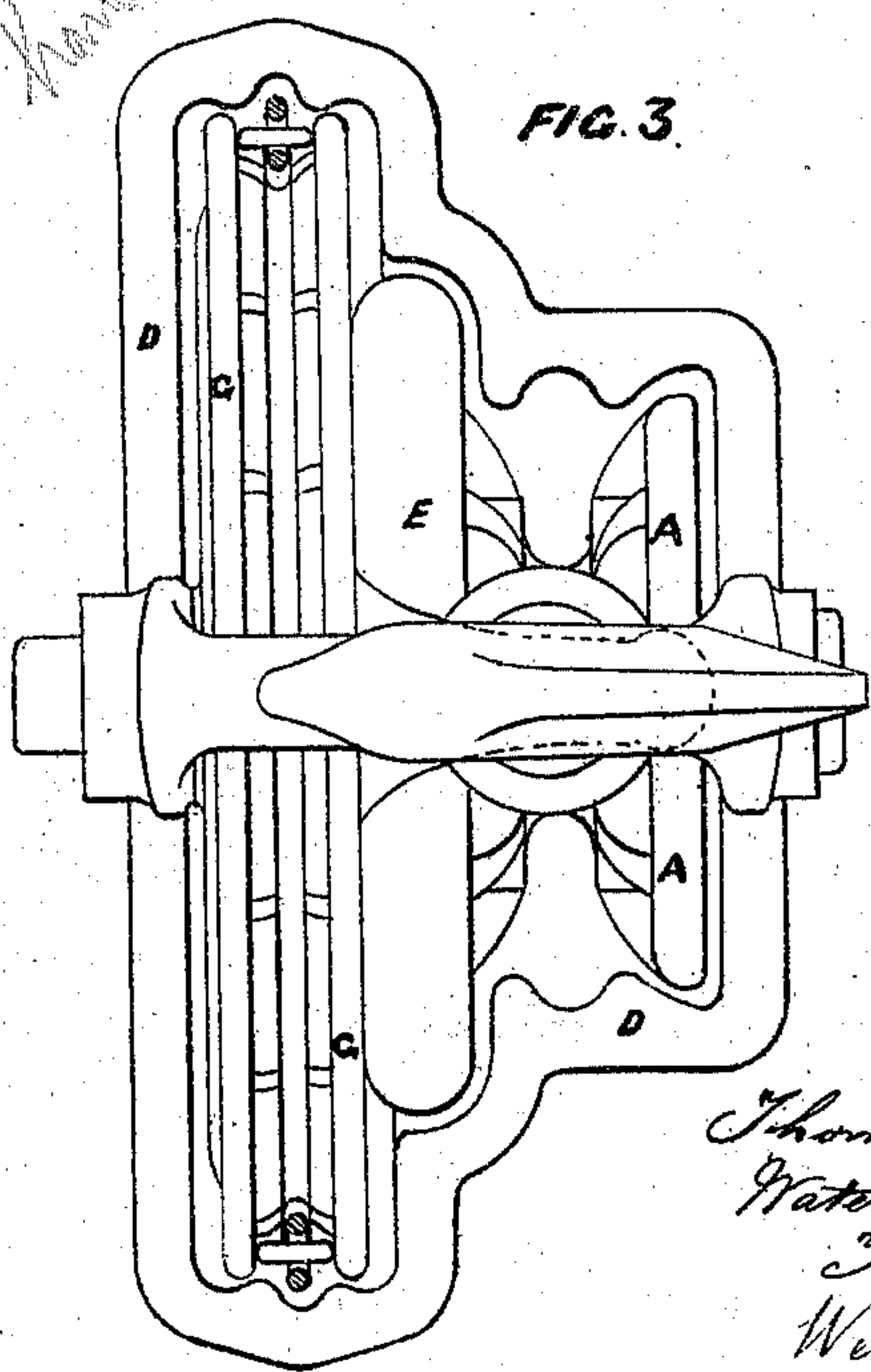


FIG. 3.

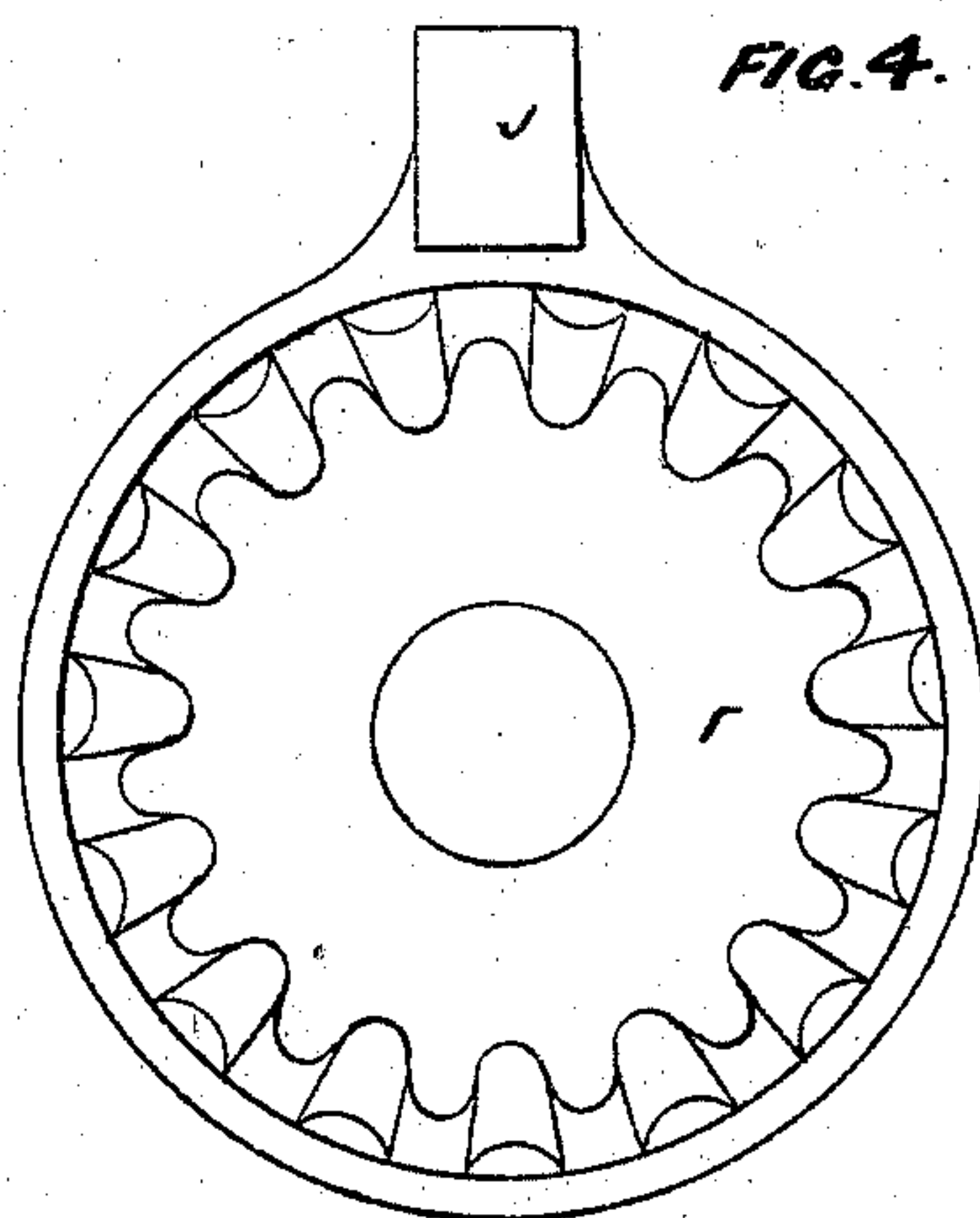


FIG. 4.

Thomas Henry Ward  
Waterloo House  
Lipton  
William Edward Phillips  
Washwood Heath House  
Ladbroke

Henry Cherry



# UNITED STATES PATENT OFFICE.

HENRY CHERRY, OF BIRMINGHAM, ENGLAND.

## IMPROVEMENT IN PULLEY-BLOCKS.

Specification forming part of Letters Patent No. 120,940, dated November 14, 1871.

*To all whom it may concern:*

Be it known that I, HENRY CHERRY, of 3 Walmer Terrace, Birmingham, in the county of Warwick, England, have invented Improvements in Pulley-Blocks, also applicable to hoisting and other machinery, of which the following is a specification:

The improved pulley-block is constructed as follows: A chain-wheel is mounted on a central pin carried by the frame of the pulley-block, which it is preferred to cast in one piece, and has a bevel-wheel, having internal teeth cast or otherwise secured to it. Into the bevel-wheel a bevel-pinion gears having a less number of teeth. The pinion is carried by an eccentric boss or pin on a wheel, hereinafter termed the hand-wheel, worked by means of a rope-chain, toothed wheel, or other means. The axis of the eccentric boss or pin is inclined to that of the central pin and intersects it. The central pin passes through the hand-wheel, which turns on or is secured to it. The pinion has an arm cast or otherwise secured to it, having a pivot or enlargement in a line drawn perpendicularly to the axis of the eccentric boss or pin from its point of intersection with the axis of the main or central pin. The pivot or enlargement works in a slot in the frame and the pinion is thus prevented from turning. On causing the hand-wheel to revolve the chain-wheel will be caused to rotate at a speed varying with the difference between the number of teeth in the bevel-wheel and pinion.

The arrangement may be varied by securing the pinion to the chain-wheel and carrying the bevel-wheel on the eccentric boss or pin.

Again the eccentric boss or pin may be carried by a sleeve on the central pin, caused to revolve by means of a wheel or handle, which may be placed outside the frame; or, again, the boss may form part of the central or main pin.

Instead of the arm on the pinion carrying a pivot, it may have a slot formed on it working on a pivot or projection secured to the frame.

To cause the motion to be conveyed uniformly, which is desirable, it is, however, necessary that the point on which the arm pivots should be in a line perpendicular to the axis of the eccentric boss or pin drawn from the point of in-

tersection of that and the axis of the central or main pin.

This invention is also applicable to lifting-jacks, crabs, hoisting, and other machinery.

Figures 1, 2, and 3 represent, respectively, a longitudinal section, an end elevation, and a plan of a pulley-block constructed according to this invention, and Fig. 4 is a face view of the pinion detached.

A is the chain-wheel, mounted on the central pin B. A chain, C, passes over it, having a hook at each end, to either of which the load may be attached. The chain is prevented from slipping by snugs or projections formed on the chain-wheel in the usual way. D is the frame. E is the bevel-wheel cast on the chain-wheel A. The bevel-pinion F gears into the bevel-wheel E, and has one or more teeth less. G is the hand-wheel, having the eccentric boss or pin H cast on it. The hand-wheel G is worked by means of the endless chain I passing over it. J is an arm cast on the pinion F, working in a slot or hole, K, in the side of the frame. At the end of J is a point or enlargement having its center in the line *a b* drawn perpendicularly to the center line *c b* of the eccentric boss or pin H, at its point of intersection *b* with the axis *d b* of the central or main B.

On the hand-wheel G being rotated the eccentric boss or pin H gives the pinion F a motion which causes its teeth to gear successively into the bevel-wheel E. The pinion F being prevented from rotating by the arm J, and having a tooth less than the bevel-wheel E, the latter advances one tooth for each revolution of the hand-wheel G. The chain-wheel A thus receives a slow motion relative to that of the hand-wheel G, and a comparatively small pull on the hand-chain I will raise a large weight attached to the chain C.

The number of teeth in the pinion may differ from that in the wheel by any number greater than one. The pivot of the arm J may be made, in some cases, to work in a slot in a brake or ratchet-wheel, by allowing which to revolve weight may be lowered rapidly. In the modification, in which the pinion is attached to the chain-wheel and the bevel-wheel carried by the eccentric box, the bevel-wheel must have the arm J secured to it.

In applying my invention to lifting-jacks, crabs, and hoisting machinery I substitute for the chain-wheel A a toothed pinion or other well-known or convenient means of transmitting the required motion.

I claim—

The combination of the bevel-wheel E, pinions F and J, and eccentric boss or pin H, operating together substantially as and for the purpose hereinbefore described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY CHERRY.

Witnesses:

THOMAS HENRY WARD,

*Waterloo House, Tipton.*

WILLIAM EDWARD PHILLIPS,

*Washwood Heath House, Saltley. (79)*