R. Griffiths.

Nut Machine.

No. 14,452. Patented Mar. 18, 1856.

Fig: 1.

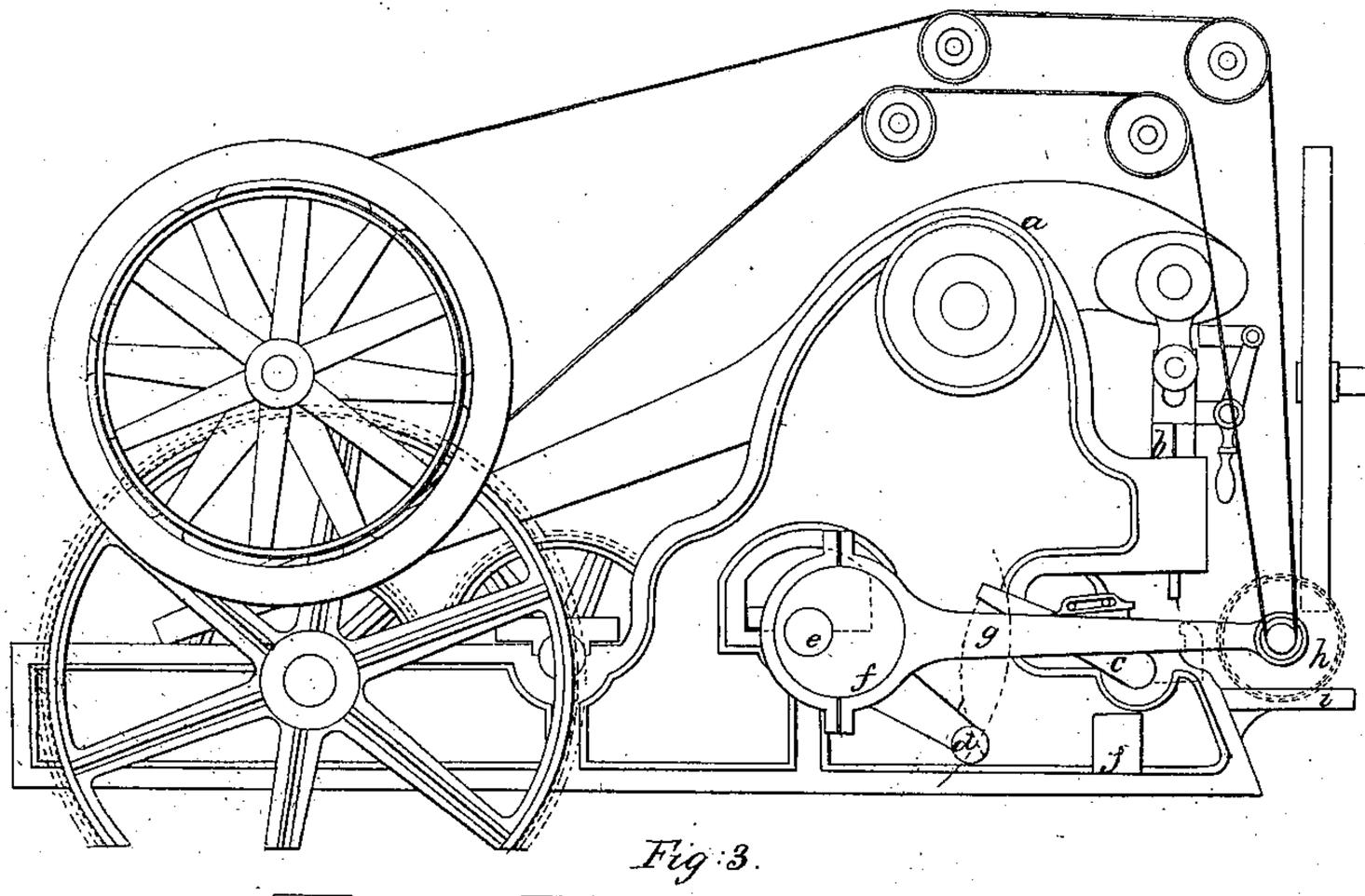


Fig: 2.

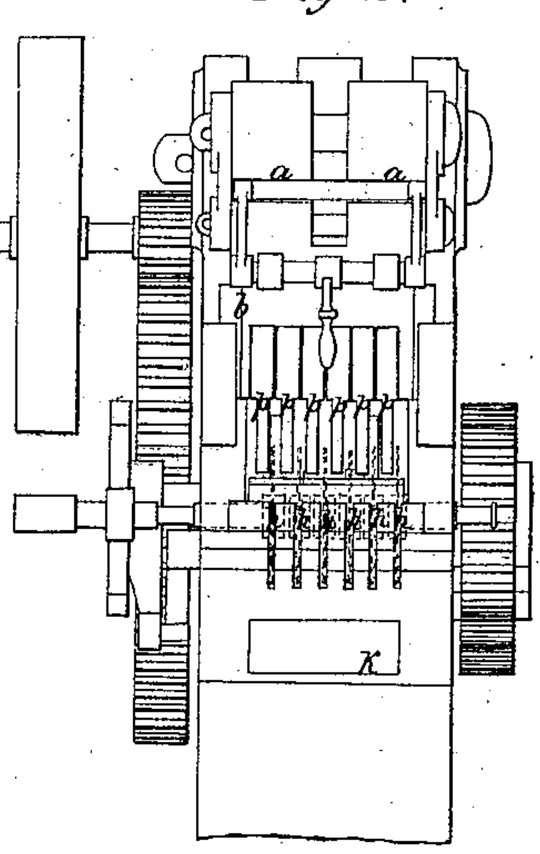


Fig: 3.

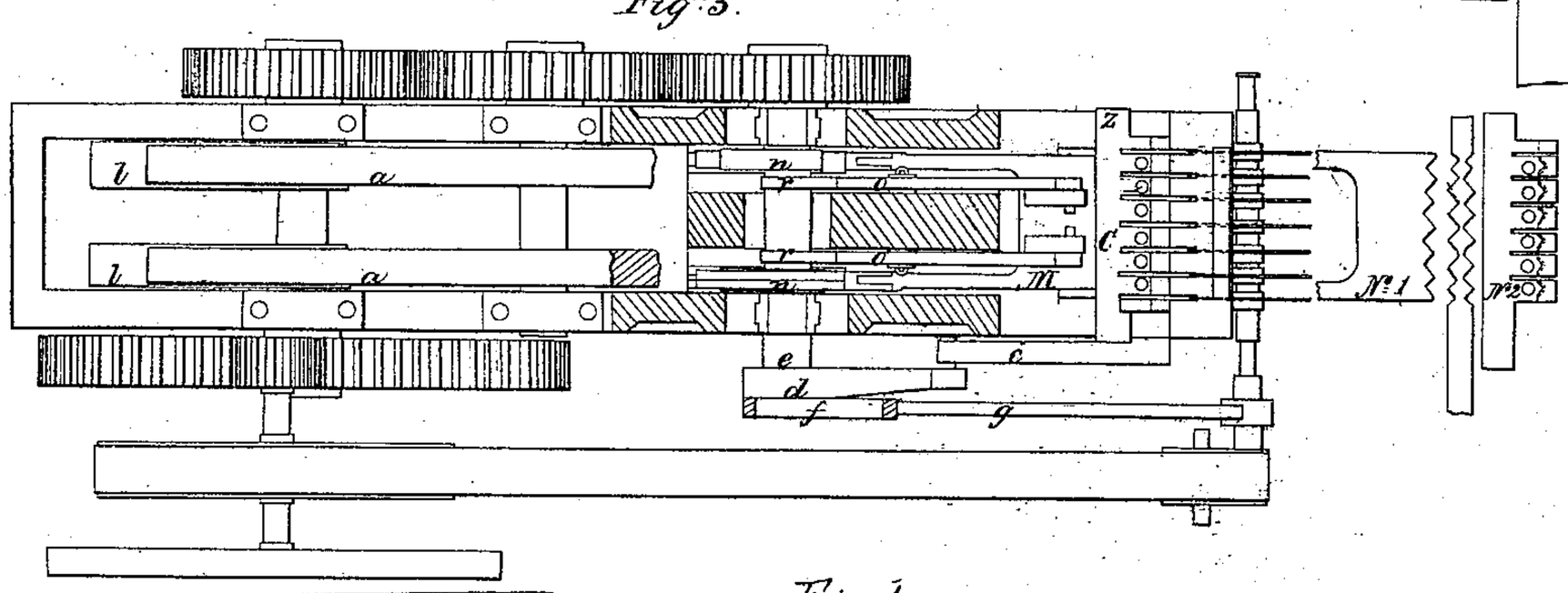
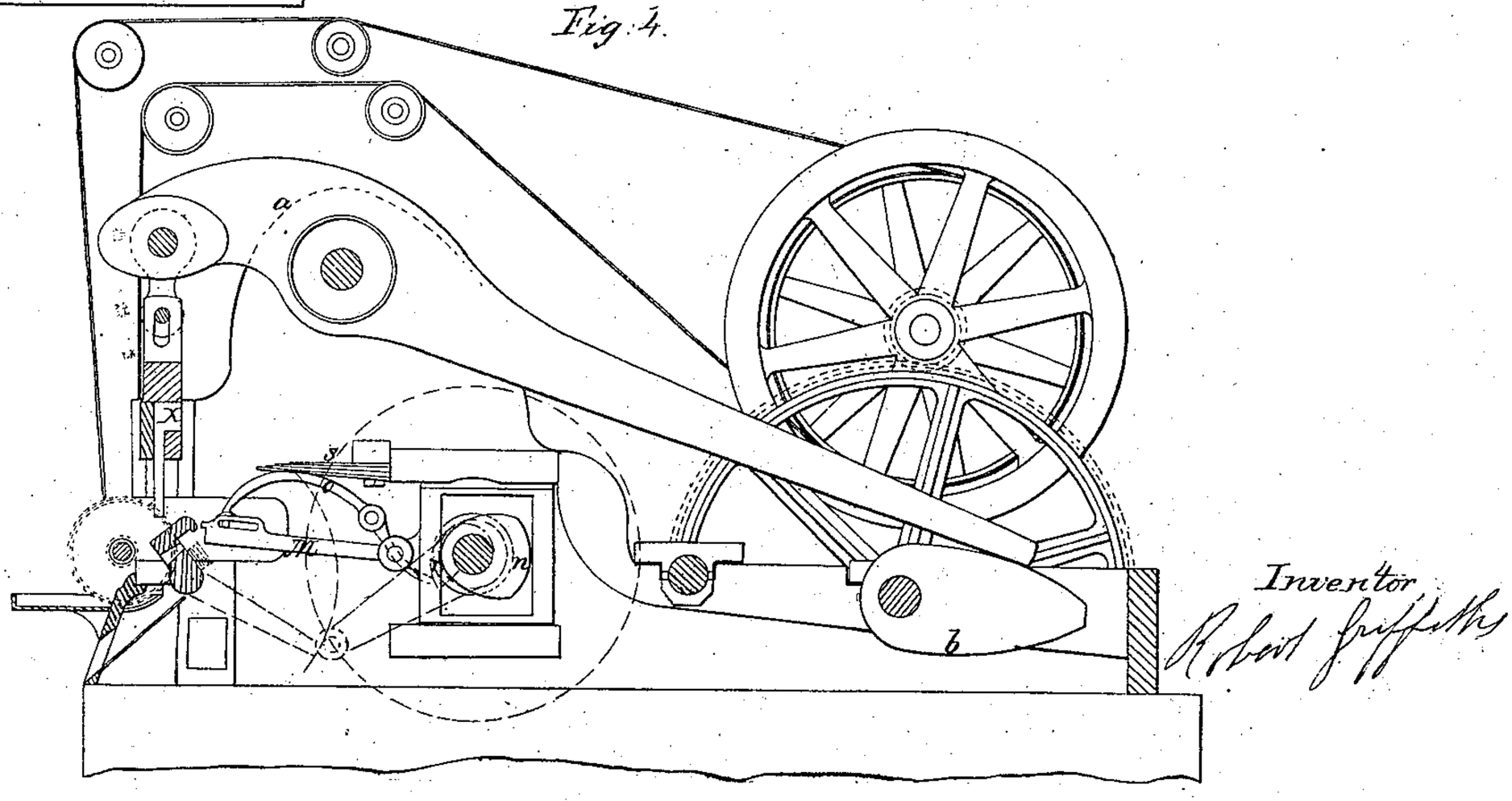


Fig: 4.



Inventor
Robert Griffiths

UNITED STATES PATENT OFFICE.

ROBERT GRIFFITHS, OF ALLEGHENY, PENNSYLVANIA.

NUT-MACHINE.

Specification of Letters Patent No. 14,452, dated March 18, 1856.

To all whom it may concern:

Be it known that I, ROBERT GRIFFITHS, of Allegheny city, in the county of Allegheny, Pennsylvania, have invented new and useful Improvements in Machinery for Making Nuts, and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification.

Figure 1 is a side elevation of the machine. Fig. 2, end elevation; Fig. 3, plan showing the cheeks or housing and parts of the levers removed to expose the arrangement of the pressing block, &c.; Fig. 4, sectional elevation.

In Fig. 1, *a*, is one of the levers; *b*, the traveling head that carries the punches; *c* lever for tilting the table to throw off the nuts when made (the end of the table is shown by dotted lines); *d*, arm or crank on the shaft *e*, which in making its revolution comes in contact with the lever *c* and by depressing it tilts the table; *f*, eccentric for bringing the saws backward and forward; *g*, rod connecting eccentric with saw shaft; *h*, saws; *i*, box of water in which the saws work; J, hole through which the nuts are discharged.

In Fig. 2, *a*, *a*, are the ends of the levers; *b*, the traveling head that carries the punches; *p*, *p*, *p*, *p*, *p*, *p*, punches; *h*, *h*, *h*, *h*, *h*, *h*, saws; *k*, hole through which the punchings are discharged.

In Fig. 3, *a*, *a*, are parts of the levers represented as broken, and parts removed to show the details of the machinery for working the pressing apparatus; *l*, *l*, cams for working the levers; C, the table on which the nuts are punched with the lever *c*, for tilting it attached *d*, the arm or crank on the shaft *e*, which tilts the table by depressing the lever *c*; *f*, the eccentric for feeding the saws; *g*, rod connecting eccentric with saw shaft; *h*, *h*, *h*, *h*, *h*, *h*, saws; M, the pressing block; *n*, *n*, cams and yokes by which the pressing block is forced forward and withdrawn; *o*, *o*, two levers for raising the pressing block when the nuts are discharged; *r*, *r*, cams for working the levers *o*, *o*.

In Fig. 4, *c*, is the table represented in the position of tilted to discharge the nuts; M, the pressing block; *n*, the cam that operates the pressing block; *o*, the lever that raises the pressing block; *r*, the cam that works the lever; *s*, springs to keep the pressing block firmly down during the process of punching and severing the nuts.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

The traveling head *b*, Figs. 1, 2, and 4, is fitted with *v*, edges as shown at *b*, Figs. 1 and 2, and works in slides fitted for it projecting from the cheeks or housing as represented. The punches fit into an opening in the traveling head as shown in the section at *x*, Fig. 4, the upper part of each punch being square of such size as the nuts required to be made, and when the squares of the number of punches required do not fill the space, liners are to be placed between the two outer punches and the sides of the opening in the traveling head. The saw shaft has a fixed feather key the length of the table, and the saws are adjusted to the distance required by washers or collars between them, of the thickness of the nuts to be cut, and tightened each end by nuts or keys.

For the different sizes of nuts the table will require to be changed, each table having grooves for the saws to work in, at such distances as the size of the nuts to be cut require, the saws work in water and the punches will be kept cool by the water sprinkled from the saws, or by a jet of water thrown on for the purpose. The pressing block can be changed for the different sizes of nuts or can be adjusted by lining the cam yoke or by making the limbs in two parts adjustable by set screws or keys. On the top of the pressing block are two lugs with oblong holes in them shown in Figs. 1 and 4, to allow the block to be drawn back or thrust forward while it is being raised or lowered by the levers, *o*, *o*.

The method of operating the machine is as follows: The heated bar of iron is placed on the table from the side Z, Fig. 3; the pressing block comes forward and forces it firmly against the ledge on the outer edge of the table and there holds it securely while the punches descend to make the holes, and while the punching is in progress and before the punches are withdrawn the saws are brought forward and the nuts are severed. The saws and punches are then withdrawn, the nuts being prevented from rising with the punches, by a narrow strip projecting over them from the ledge of the table and

from the pressing block. As soon as the saws and punches are withdrawn, the pressing block is taken back by the motion of the cams, *n*, *n*, and raised by the levers, *o*, *o*, acted on by the cams *r*, *r*, the arm or crank *d*, depresses the lever *c*, and tilts the table and discharges the nuts; the table returns to its position by its own weight, or by a counterweight or springs and is ready to receive the next bar and so on continuously. I would explain that the saws may be stationary and the bar after the holes are punched may be fed toward the saw by the same arrangement as that specified for feeding the saw toward the bar.

The motion is communicated to the machine by cog wheels working into each other and driven by a steam engine, water wheel, horses or any other sufficient power, and the saws driven by a strap or straps geared from the machine as represented in the drawings.

Having thus fully described the construction and operation of my machine, what I claim as new and desire to secure by Letters Patent as my invention is—

The use of the compressors M, punches *p*, saws *h*, cams *n* and *z*, levers *o* and *c*, crank *d*, and traveling head *b*, constructed, arranged and operating as described for the purpose of making nuts from heated bars as herein set forth.

ROBERT GRIFFITHS.

Witnesses:
ALEX. HAYS,
GEORGE GOEWEY.