

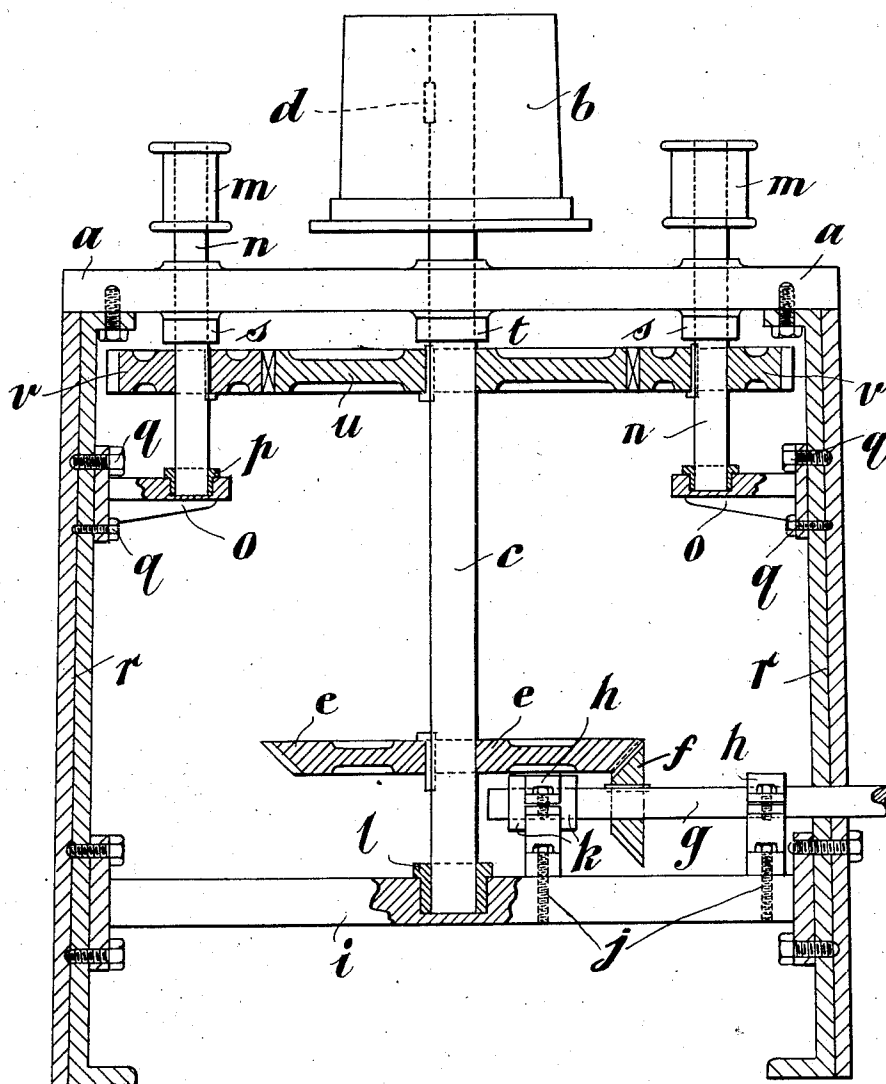
M. ROOKE.  
CONTINUOUS WIRE DRAWING MACHINE.  
APPLICATION FILED FEB. 8, 1912.

1,062,036.

Patented May 20, 1913.

3 SHEETS—SHEET 1.

*Fig. 1.*



Witnesses:  
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Ed. Crowell

Inventor:  
Michael Rooke  
by B. Singer  
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3 SHEETS—SHEET 2.

*Fig. 2.*

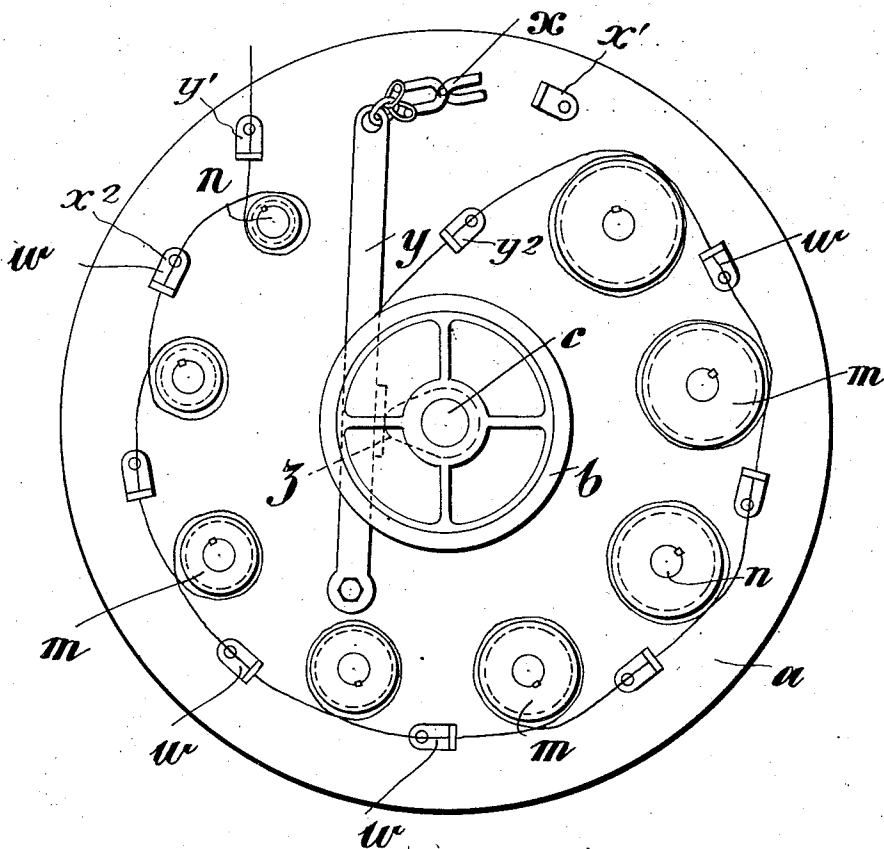


*Fig. 4.*

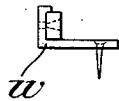
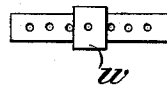


*Fig. 5.*



*Witnesses:*  
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*Ch. Brownell*

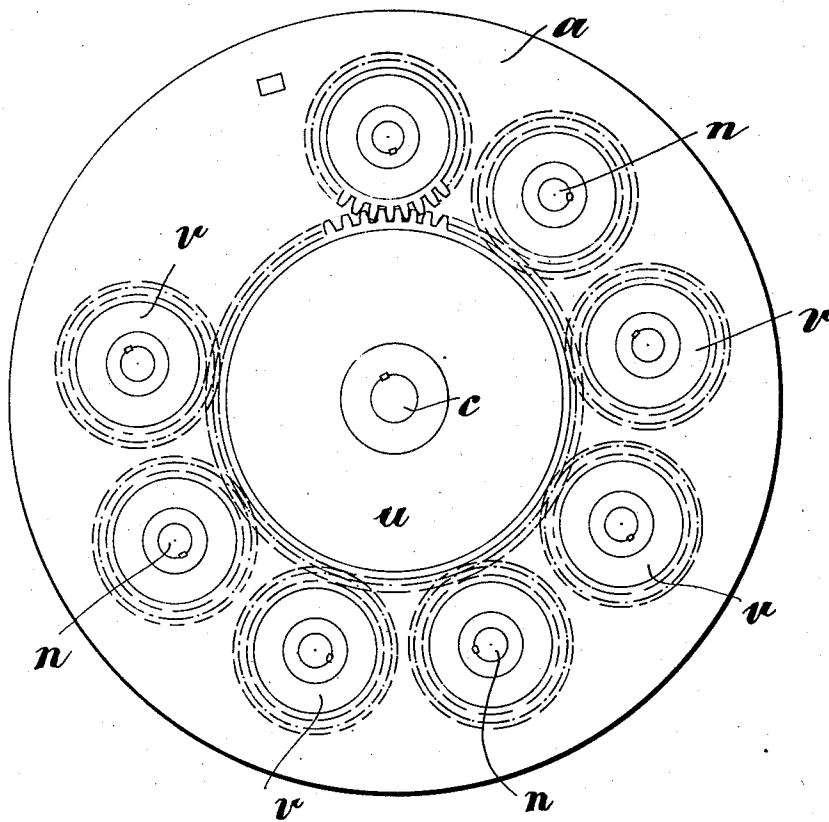
*Inventor:*  
*Michael Rooke*  
*by B. Singer*  
*Atty*

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3 SHEETS—SHEET 3.

*Fig. 3.*



*Witnesses:*  
*M. R. Roke*  
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# UNITED STATES PATENT OFFICE.

MICHAEL ROOKE, OF HANDSWORTH, BIRMINGHAM, ENGLAND.

## CONTINUOUS-WIRE-DRAWING MACHINE.

1,062,036.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed February 8, 1912. Serial No. 676,372.

*To all whom it may concern:*

Be it known that I, MICHAEL ROOKE, a subject of the King of Great Britain, residing at 11 Lime Grove, Handsworth, Birmingham, in the county of Warwick, England, foreman wire-drawer, have invented certain new and useful Improvements in or Pertaining to Continuous-Wire-Drawing Machines, of which the following is a specification.

This invention relates to continuous wire drawing machines, and it has for its object a machine which is of a very simple character which occupies a small amount of space and which provides for easy access to each winder or block.

According to the present invention a series of winders is arranged in conjunction with a main drum the said winders being characterized in that they increase in diameter from the smallest to the largest. Advantageously the winders are arranged around the main drum in such a manner that the wire successively passes around each winder commencing at the smallest and finishing around the largest or central drum. By this arrangement of winders, the spindles on which they are mounted may be rotated at the same number of revolutions per minute and yet compensate for the increase in the length of wire.

In order that this invention may be clearly understood and more readily carried into practice, reference may be had to the appended explanatory three sheets of drawings, upon which:—

Figure 1 is an elevation of a machine according to the invention. Fig. 2 is a plan of the machine shown in Fig. 1. Fig. 3 is a plan showing gear wheels for driving the winders. Fig. 4 is a side elevation of one form of drawing plate or die. Fig. 5 is an end elevation of the drawing plate or die shown in Fig. 4.

In this invention a suitable table *a* is provided and conveniently in the center thereof is the drum *b* on which the wire is finally wound, said drum being secured to a vertical rotating shaft *c* by means of a key *d*. Said vertical shaft is driven in any convenient manner such for instance as by a pair of bevel wheels, the larger one *e* of which is keyed to the vertical shaft *c*, while the smaller one *f* is secured to a horizontal driving shaft *g* mounted in bearings *h* of any suitable character. The bearings may be

attached to a cross bar *i* of the frame by bolts or set screws *j*, suitable collars *k* preventing movement of the horizontal shaft in an axial direction. The cross bar of the frame may also be utilized to accommodate the bearing *l* in which the central vertical shaft rotates. Surrounding the central shaft is a suitable number such as nine, of winders or blocks *m* which gradually increase in size from the smallest to the largest, said winders or blocks being all driven at the same number of revolutions per minute.

A convenient method of rotating the winders or blocks *m* may consist in securing them upon vertical spindles *n* suitably journaled in the table *a* of the machine and supported at their lower extremities by brackets *o*, provided with bearings *p* and attached conveniently by set screws *q* to the same standards *r* upon which the top table and the cross bar aforementioned are mounted. Suitable loose collars *s* may be secured to the vertical spindles *n* to prevent their upward movement, a similar collar *t* being also attached to the central main shaft for a like purpose. A convenient method of rotating the subsidiary vertical spindles from the main vertical shaft takes the form of a spur wheel *u* on the main shaft which gears with smaller spur wheels *v* on the subsidiary spindles, the gear wheels on the latter being all of the same diameter and meshing with the central wheel *u*.

Intermediate each pair of winders is disposed a drawing plate or die *w* through which the wire passes to gradually reduce it in size; the wire passing around one winder; through the die, and onto the next winder; thence through the next die and so on throughout the entire series finishing around the largest or central drum. To pull the wire through at starting, a pair of grippers *x* may be attached to the extremity of a fulcrum lever *y*, said lever being acted upon at a short distance from its fulcrum by a suitable cam *z* mounted on the main vertical shaft in such a manner that the extremity to which the grippers are attached has an amplified movement as compared with the lift of the cam.

The dies *w* comprise die supports for suitable dies which are attached thereto, and the dies may consist of a bar of metal having one or several holes therethrough of different sizes, held in place by the die sup-

ports. In some embodiments of the invention, I may use dies  $x'$ ,  $y'$  and  $y^2$ . The die  $x'$  would only be used in initially starting the machine.

5 In starting the drawing operation, the operator first files, or otherwise reduces the end of the wire to a smaller diameter, and passes it through the first die which, of course, would have the largest hole, and  
10 which is indicated at  $x'$ . The grippers  $x$ , on the lever  $y$ , would be attached to the inserted reduced end of the wire so that when the cam  $z$  rocks the lever  $y$  the length of wire would be pulled through the die  $x'$ . This  
15 operation with the lever  $y$  is repeated until a number of yards of wire has been drawn through. The die, proper, is then taken out of the die support  $x'$  and placed in position in the bearer or die support  $y'$ . The loose end of  
20 wire, which has been drawn through the first die, is then in like manner drawn through the second die, by again filing or reducing the end of the wire and drawing it through the second die by the grippers  $x$ , the second  
25 die being placed in the support  $x'$ , for this operation. When a sufficient length of wire has been drawn through the second die this is transferred to its bearer or support,  $x^2$ , after the intermediate length of wire be-  
30 tween the first and second dies has been passed one or more times around the first winder. By this process all of the dies

have to be threaded and placed in position, including a final die, at  $y^2$ , so that the wire is drawn through each die by the grippers 35  $x$  and lever  $y$ . After the dies have all been threaded, and transferred to their proper supports, with the intermediate lengths of wire wound around the respective winders, then the end of the wire is secured to the 40 central drum and the wire drawing continues automatically until the entire length of wire supply has been drawn through.

What I claim as my invention and desire to secure by Letters Patent is:— 45

A wire drawing machine comprising in combination, a series of winders mounted to rotate about different axes and being of successively increased size from the first or starting to the last or delivery winder, de- 50 vices for reducing the wire during its passage from one winder to the other, and mechanisms for driving said winders at the same number of revolutions per minute whereby the increasing surface speed of suc- 55 cessive winders serves to take up wire length increase of the reduced wire, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses. 60

MICHAEL ROOKE.

Witnesses:

ARTHUR H. BROWN,  
ARCHIBALD F. LAMB.