

(No Model.)

3 Sheets—Sheet 1.

L. S. BURRIDGE & N. R. MARSHMAN.  
TYPE WRITING MACHINE.

No. 575,146.

Patented Jan. 12, 1897.

Fig. 1

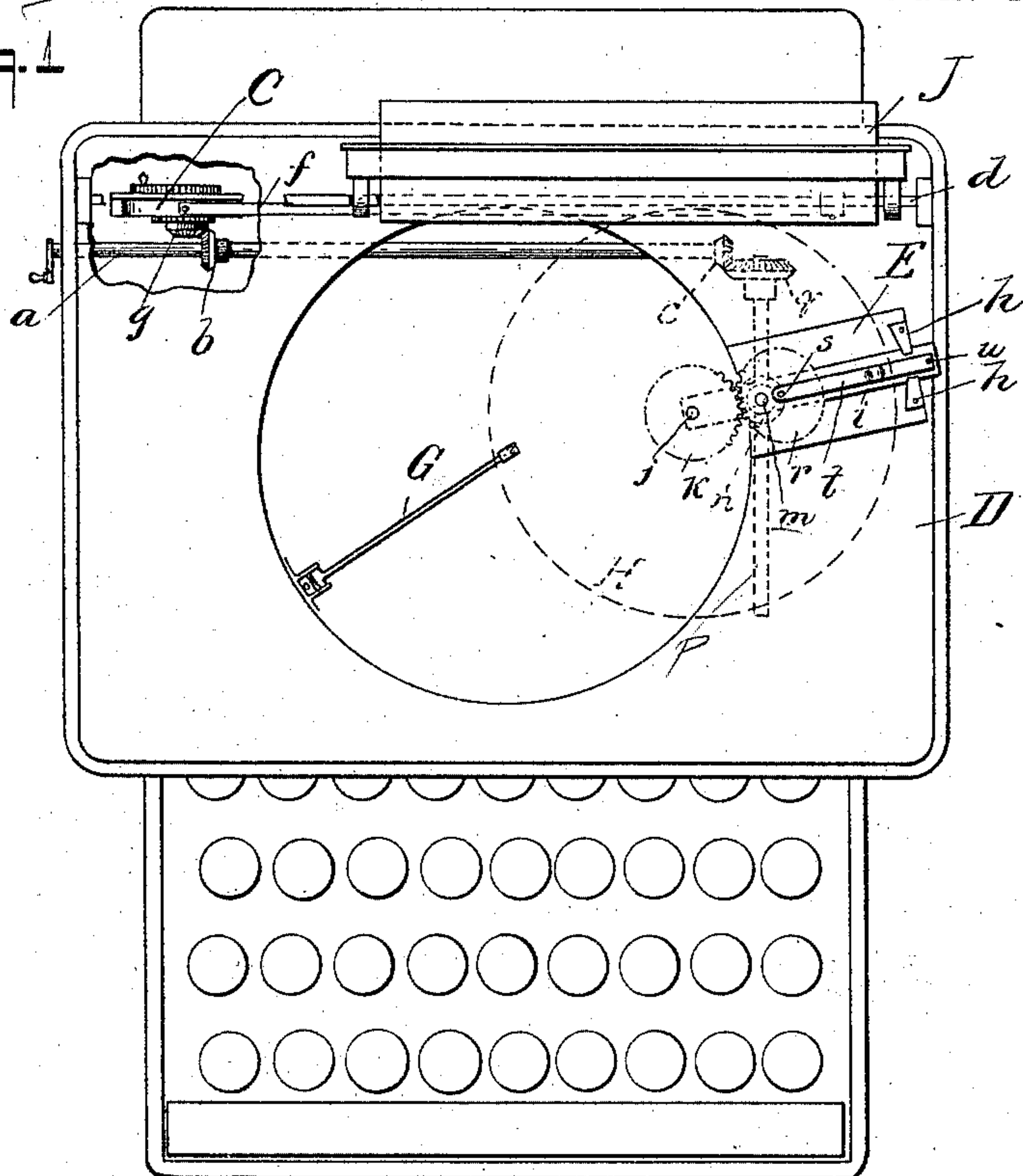
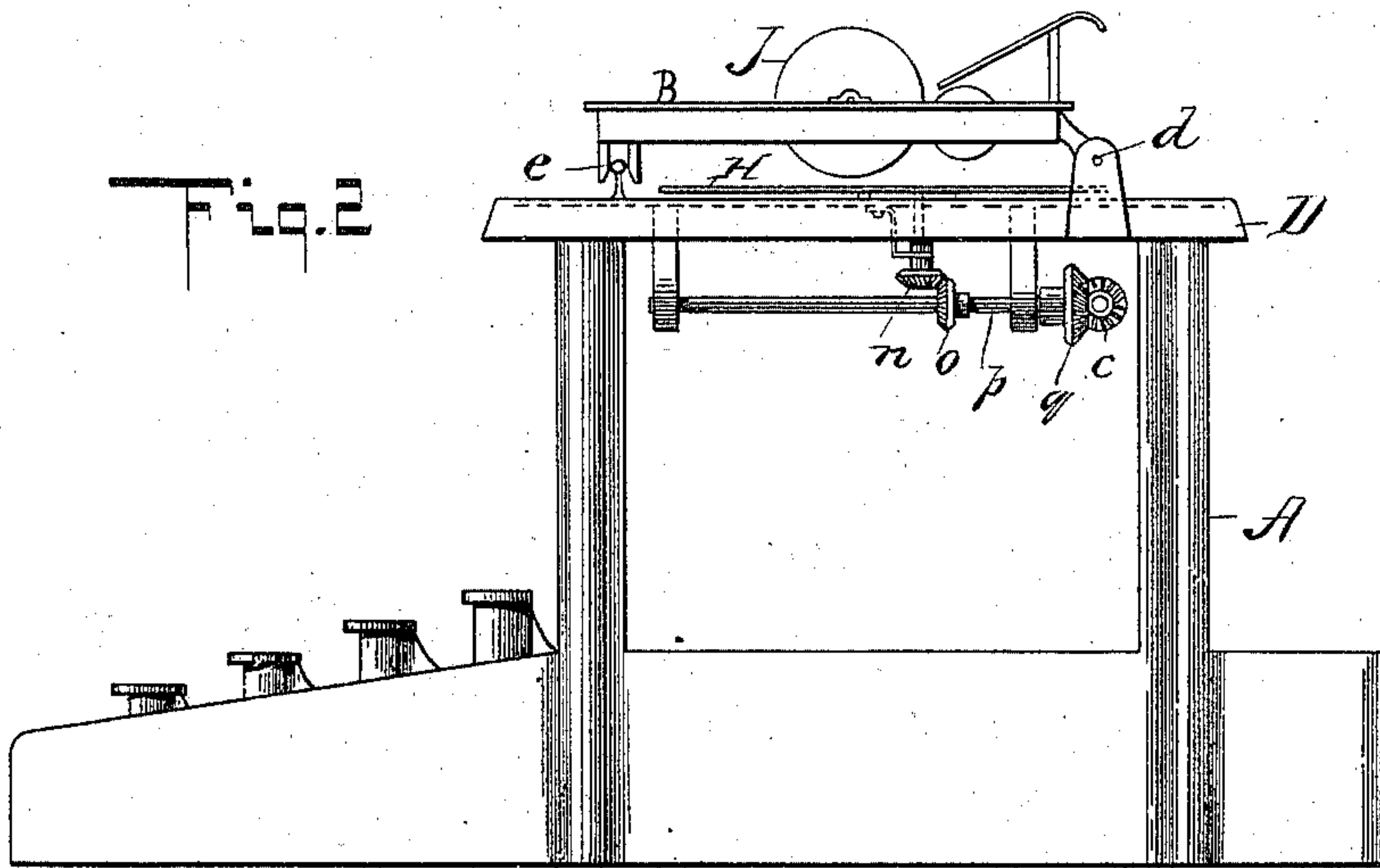


Fig. 2



WITNESSES:

*Edmund H. Hume*  
*Edw. C. Morse*

INVENTORS

*Lee S. Burridge*  
*Newman R. Marshman*  
BY *Briesen & Knaut*

ATTORNEYS

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Fig. 3

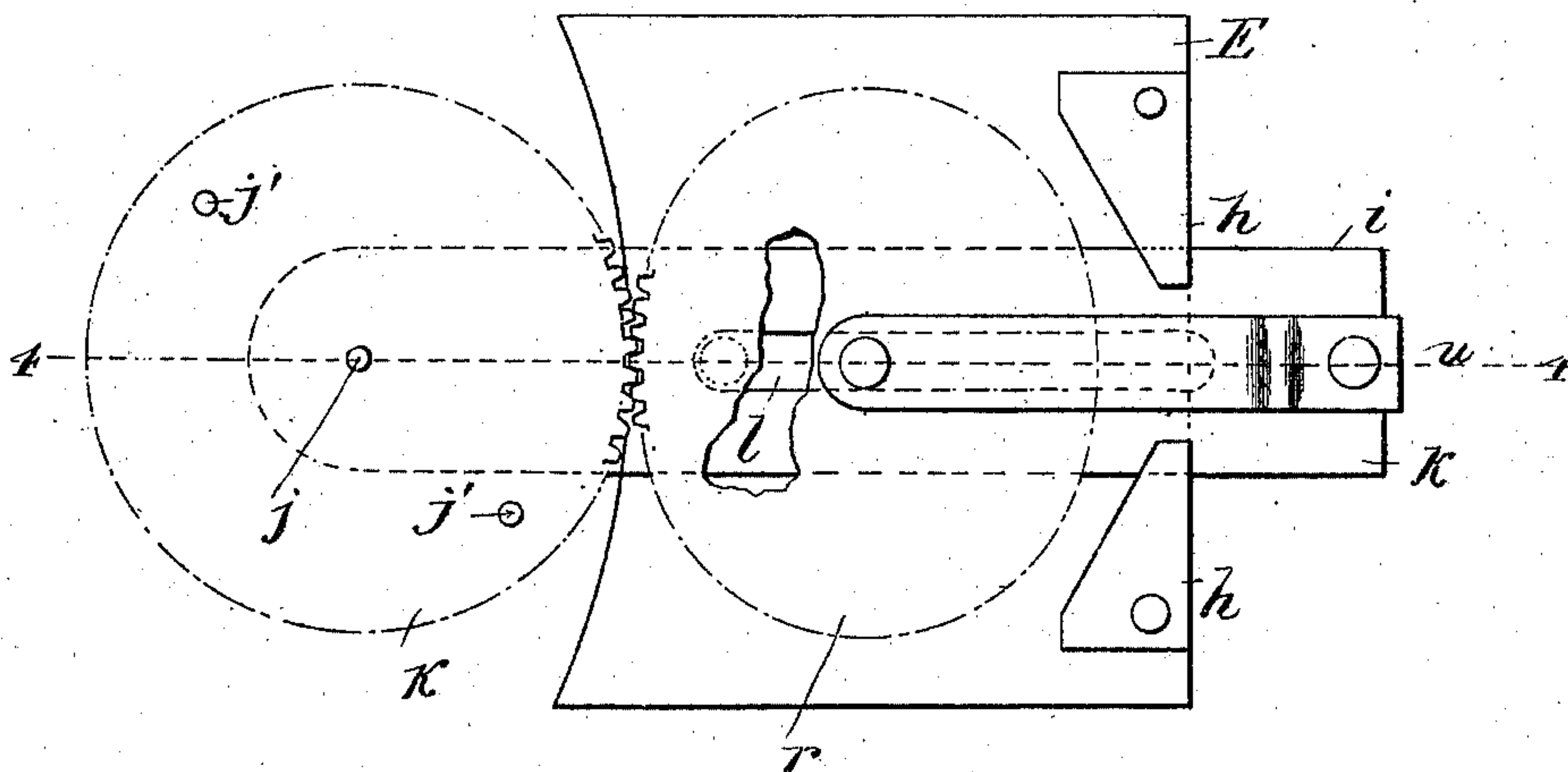
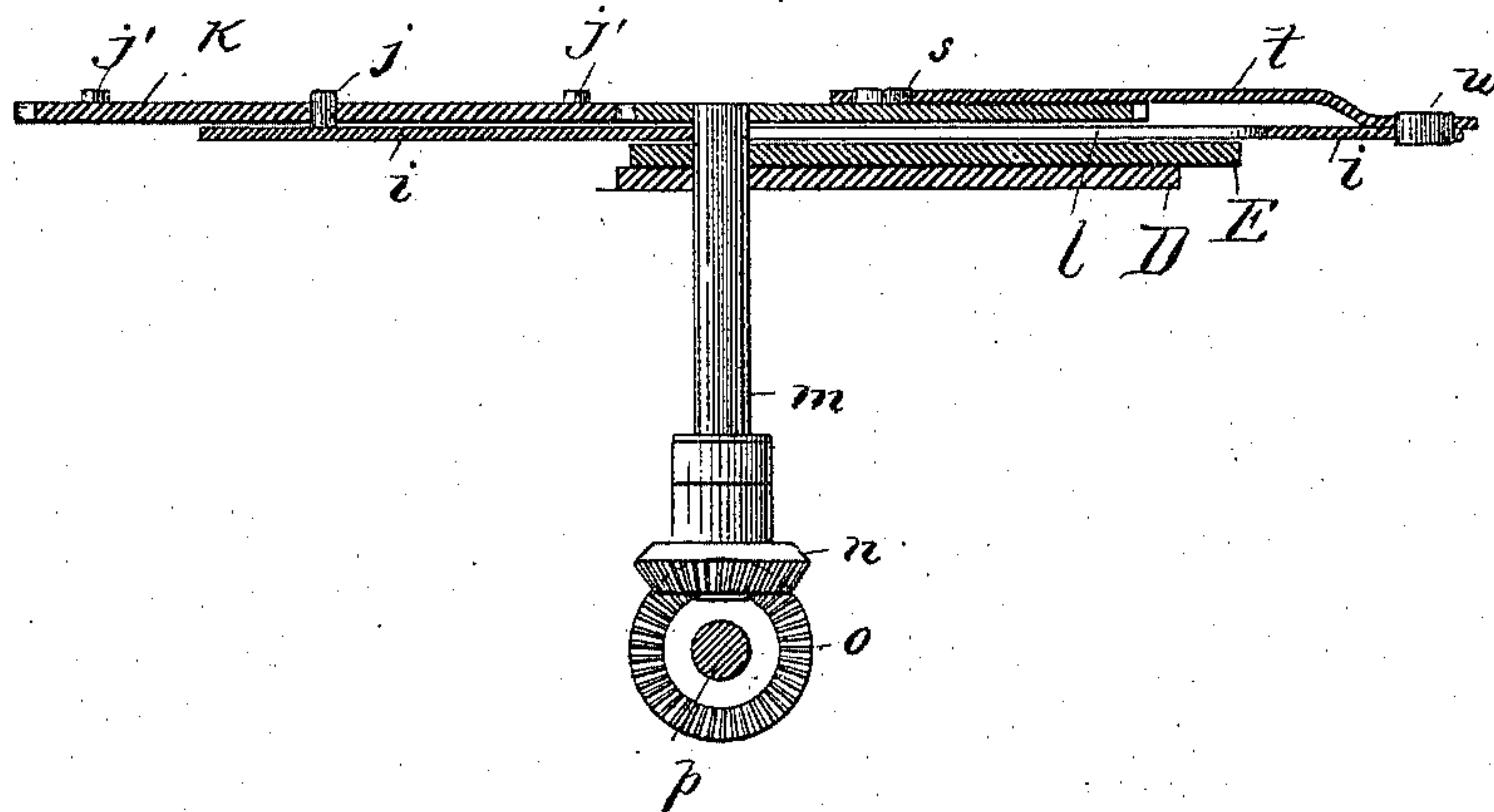


Fig. 4



WITNESSES:

*Edmund A. Thayer*

*Ed. C. Moore*

INVENTORS

*Lee S. Burrige*  
*Newman R. Marshman*

BY

*Briesen Knautz*

ATTORNEYS

(No Model.)

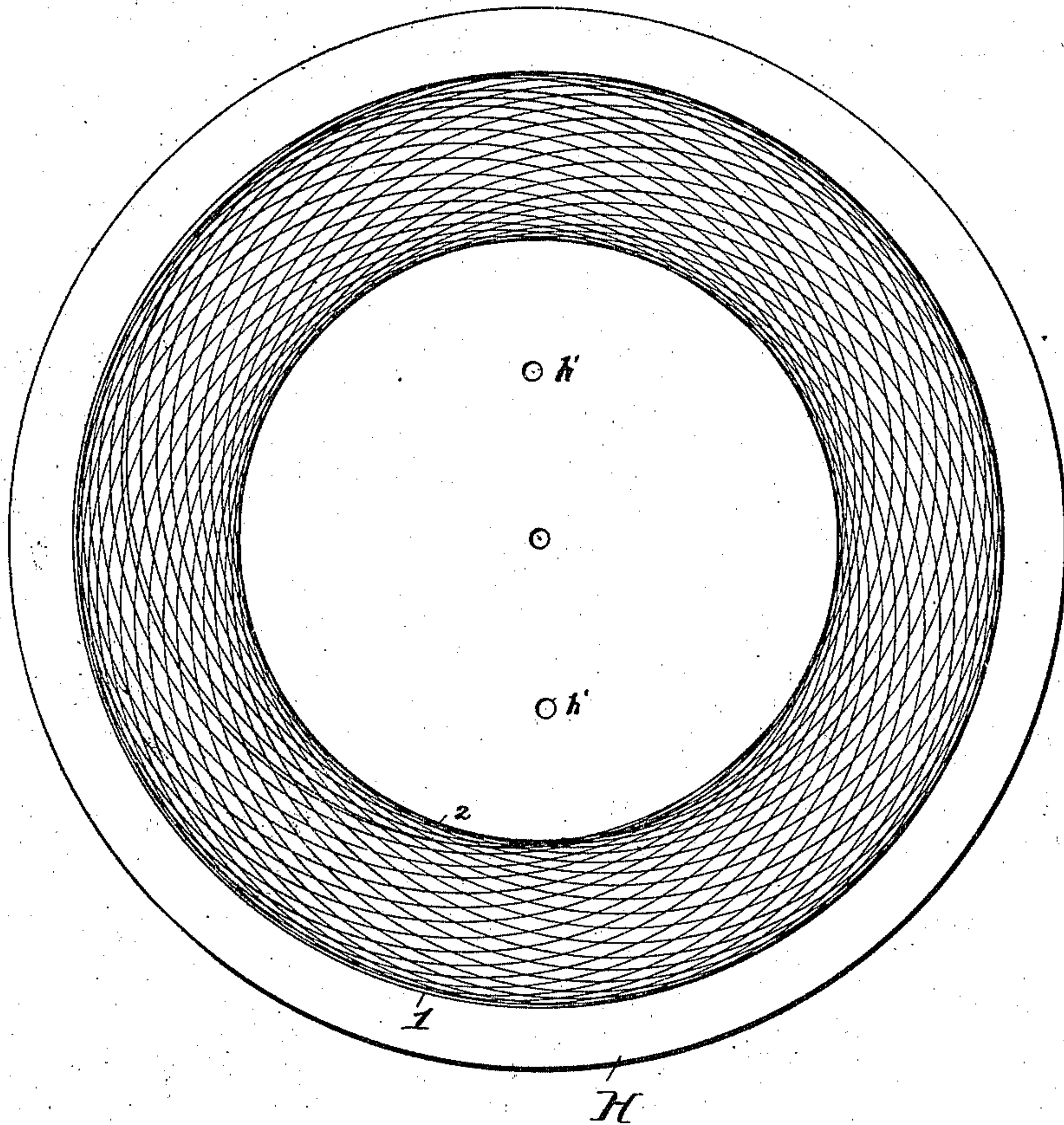
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Fig. 5



WITNESSES:

*Edmund A. Thayer*  
*Geo. P. Morse*

INVENTORS

*Lee S. Burridge*  
*Newman R. Marshman*  
BY *Briesen & Thant*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

LEE S. BURRIDGE AND NEWMAN R. MARSHMAN, OF NEW YORK, N. Y.,  
ASSIGNORS TO JOHN T. UNDERWOOD, OF SAME PLACE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,146, dated January 12, 1897.

Application filed November 1, 1895. Serial No. 567,608. (No model.)

*To all whom it may concern:*

Be it known that we, LEE S. BURRIDGE and NEWMAN R. MARSHMAN, residents of the city, county, and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

Our invention relates to type-writing machines, and has reference more especially to a new and improved inking device and mechanism for shifting said inking device.

Our invention consists in the special matters hereinafter set forth and claimed.

Our invention will be understood by reference to the accompanying drawings, which illustrate one form thereof.

In the drawings, Figure 1 is a plan view of a type-writing machine embodying our invention. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged detail plan view of portions of the device for moving the ink-carrier. Fig. 4 is a section on line 4 4 of Fig. 3; and Fig. 5 is a plan view of a form of the inking device, showing the paths of travel of the points where the printing agent will strike.

In the drawings, A indicates the frame of a type-writing machine, carrying a winding-shaft *a*, upon which bevel-gears *b c* are carried.

B is the carriage of the machine, which moves on the back and front rods *d e* in the usual manner. This movement is effected during manipulation of the keys by the carriage spring-barrel C and a strap connection *f*, intervening between the said spring-barrel C and carriage B. This operation is well understood and need not be further described. Carried by the shaft of the spring-barrel C is a bevel-gear *g*, which meshes with the gear *b* on the winding-shaft *a*. Mounted upon the top plate D of the type-writer is a plate E, which is provided with guides *h h*, between which guides passes a slide *i*, carrying at or near one end a pin *j*, upon which a circular gear-wheel *k* is journaled. The slide *i* is slotted, as at *l*, for the passage of a vertical shaft *m*, which carries a gear-wheel *n* at its lower end, (see Fig. 4,) which gear-wheel meshes with the bevel-gear *o* on the shaft *p*, (see Fig. 2,) which also carries a gear *q*, meshing with the gear *c* on the winding-shaft *a*. Mounted upon the upper end of the shaft *m*

is an elliptical gear-wheel *r*. In the present instance this gear *r* closely approximates the circular form and is eccentrically mounted on its shaft *m*. This gear-wheel meshes with the circular gear-wheel *k* and is provided with a pin *s*, which is connected to the slide *i* by means of a link *t*, which is pivoted by the pin *u* to the slide *i* and works freely on the pin *s*.

G is the printing agent, which may be in the form of the usual type-bar now employed. Mounted and secured upon the gear *k*, so as to rotate therewith, is the inking device, shown in the present instance as a plate or disk H, of textile fabric, intervening between the printing agent and the impression-roller or platen J of the machine. For this purpose we preferably employ a flimsy edge-stiffened inking-sheet, such as is shown and described in our application for patent, Serial No. 567,607, filed November 1, 1895. This sheet is preferably connected to the disk by pins *j'*, extending upwardly from the wheel *k* and entering apertures *h'* in the disk H.

As the operation of the other parts is well known, we will describe simply the operation of the shifting mechanism for the inking device. As before explained, the inking device H is carried by the wheel K, and as the shaft *a* is rotated the shaft *p* will be thereby rotated, also rotating the vertical shaft *m*, which carries with it the elliptical wheel *r*. The elliptical wheel *r*, carried by the vertical shaft *m*, will rotate the wheel *k*, thereby also rotating the inking device H, and will also, in addition, impart to the wheel *k* and inking device carried thereby a motion of translation, by reason of the fact that the wheel *r* is eccentrically mounted on its shaft and the wheel *k*, with which it meshes, is carried by the freely-movable slide *i*. It is also to be observed that for every rotation of the inking-disk the said disk will be reciprocated back and forth only once. Hence the motion of rotation or peripheral speed of the disk will be faster than the bodily movement of translation or reciprocation, that is to say, the disk will rotate at a relatively fast rate of speed and the displacement of the center of rotation thereby will occur at a relatively slow rate of speed, the link connection between wheel *r* and the slide *i* serving to return the slide and wheel



$k$  when  $r$  has turned into such position as to push  $k$  to its greatest distance from the center of rotation of  $r$ .

It will be obvious that as the point of strike  
5 of the printing agent or printing-point will  
always be in the same place the combined  
rotation and reciprocation of the disk will  
cause the printing agent to strike the said  
10 disk along paths which are eccentric to the  
axis of rotation of the disk. These paths,  
which we denominate the "paths of travel of  
the inking device," will lie within an annulus  
whose width will depend upon the extent of  
15 reciprocating motion imparted to the disk.  
This is clearly shown in Fig. 5, wherein a  
disk H is shown, having a zone or annulus  
bounded by concentric circles 1 2, whose dis-  
tance apart depends upon the extent of  
20 "throw" of the elliptical wheel  $r$ . In the  
present instance, owing to the fact that the  
wheels  $k$  and  $r$  have not the same number of  
teeth, (one having seventy teeth and the other  
seventy-two teeth,) there will be thirty-five of  
25 these paths intersecting each other, so that  
in order that any given point in the disk may  
be moved from the printing-point and re-  
turned to it, it would be necessary to effect  
thirty-five revolutions of the disk.

It will be obvious that our mechanism may  
30 be greatly varied by those who may desire to  
enjoy the fruits of our invention, so there-  
fore we do not limit ourselves to the construc-  
tion shown. We would also have it under-  
stood that when hereinafter in the claims we  
35 make use of the word "disk" we mean to  
thereby include other shapes of plates, either  
regular or irregular.

What we claim, and desire to secure by Let-  
ters Patent, is—

40 1. A type-writer organization comprising a

printing agent and platen combined with an  
inking plate or disk, means for rotating the  
disk and mechanical means for imparting a  
reciprocating motion to the center of rotation  
of the disk. 45

2. A type-writer organization comprising a  
printing agent and platen combined with an  
inking-disk, means for rotating the inking-  
disk and mechanical means for producing a  
reciprocating motion of the center of rotation  
50 of the inking-disk along a rectilinear path.

3. A type-writer organization comprising a  
printing agent key-levers and a platen, an  
inking-disk, means for rotating the said ink-  
ing-disk and means for automatically displac-  
ing the axis of the inking-disk by means of  
55 the action of the key-levers in such a man-  
ner that successive portions of the disk will  
be presented to the printing-point, said suc-  
cessive portions lying in an annular space  
60 between circles concentric with the center of  
rotation of the disk.

4. A type-writer organization comprising  
the following instrumentalities in operative  
combination, to wit: a printing agent and  
65 platen, an inking-disk, means for rotating  
the disk at a relatively rapid rate of speed  
and means for automatically displacing the  
center of rotation of the disk at a relatively  
slow rate of speed by means of the action of  
70 the key-levers, whereby the printing agent  
will be made to act upon curves lying eccen-  
trically within a ring on the disk which ring  
is concentric to the center of rotation of the  
disk.

LEE S. BURRIDGE.

NEWMAN R. MARSHMAN.

Witnesses:

GEO. E. MORSE,

MAURICE BLOCK.