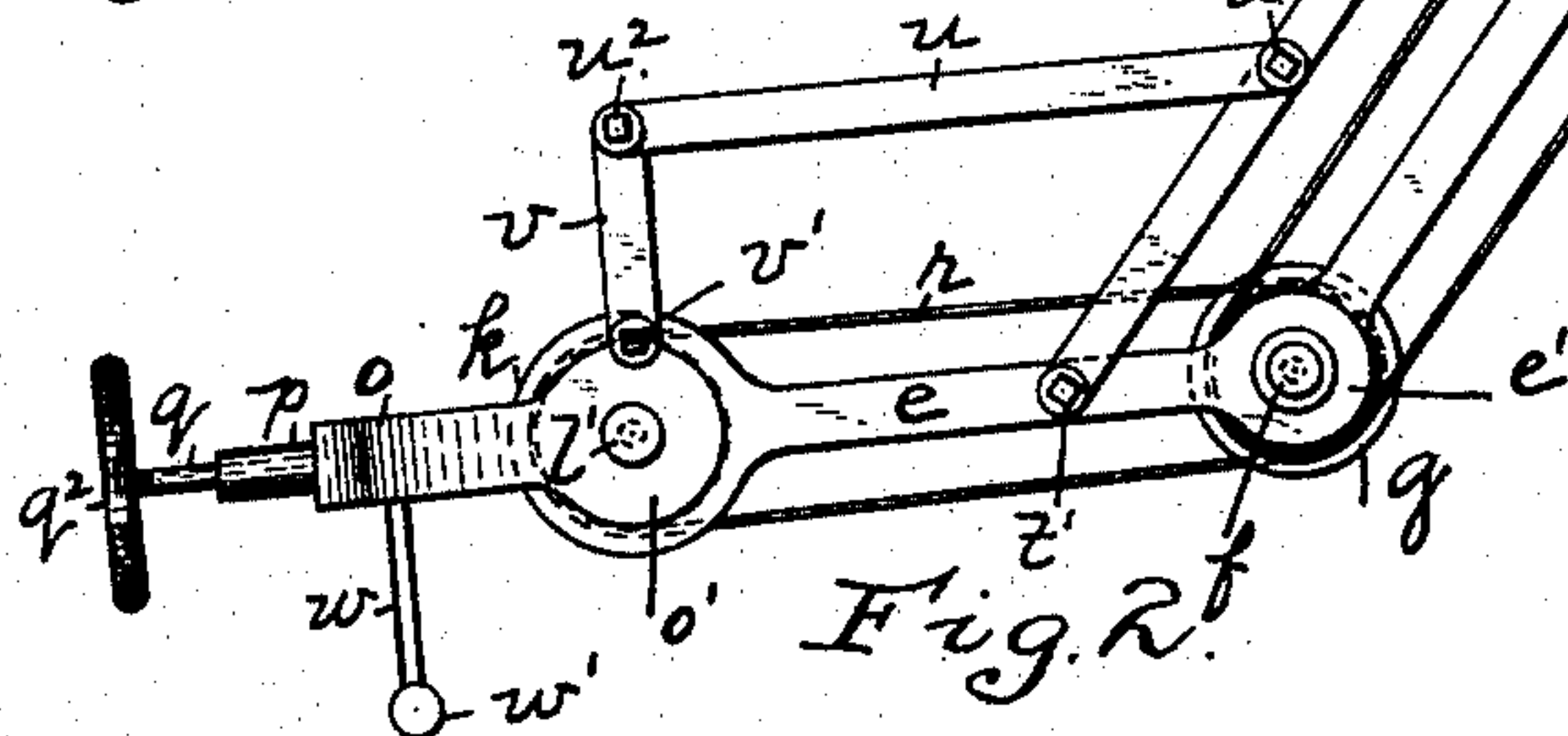
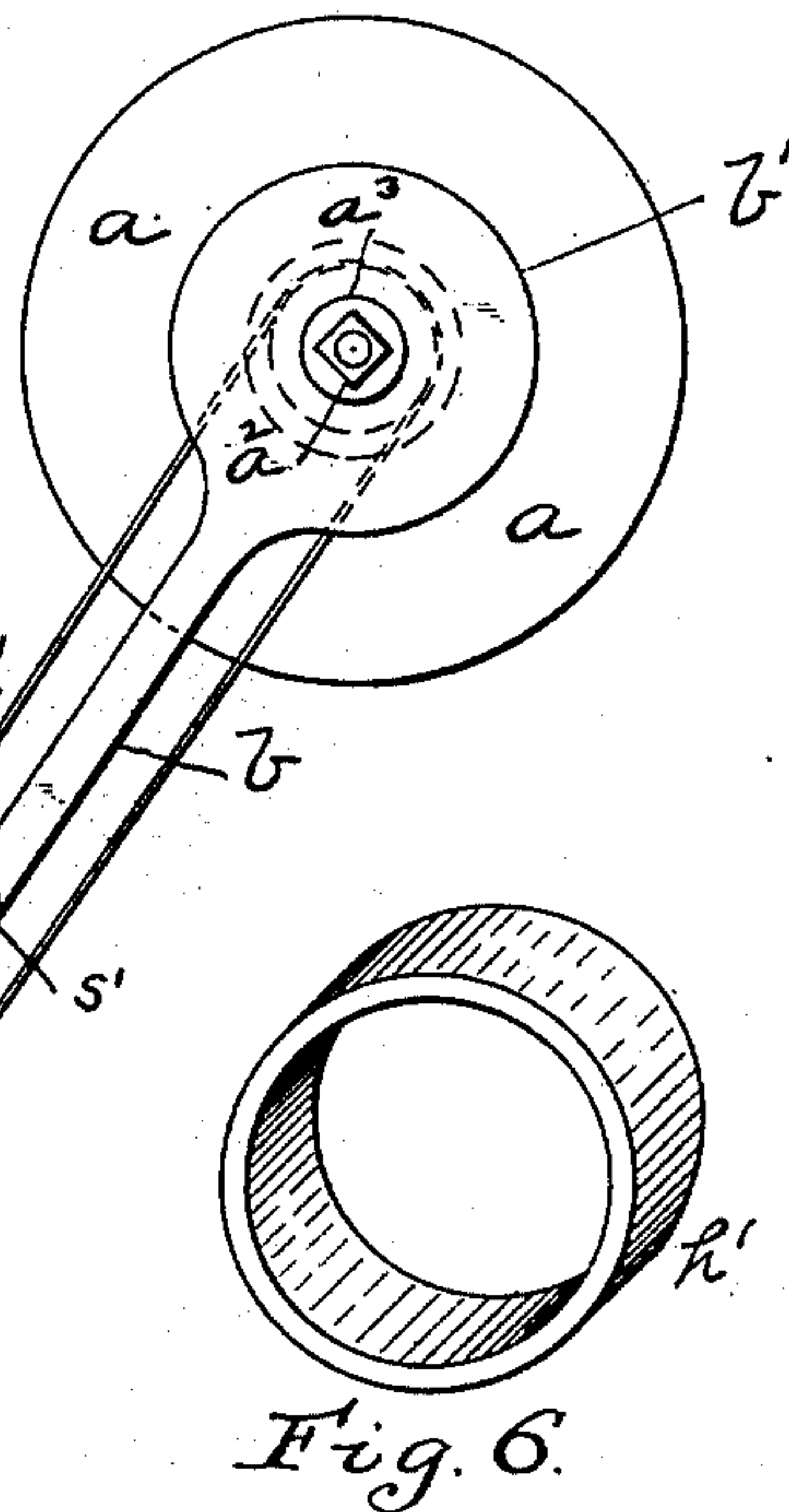
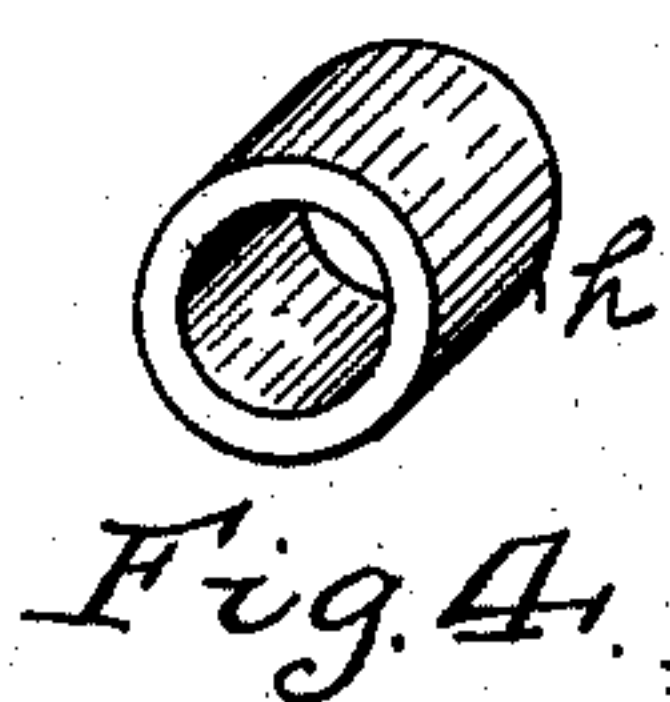
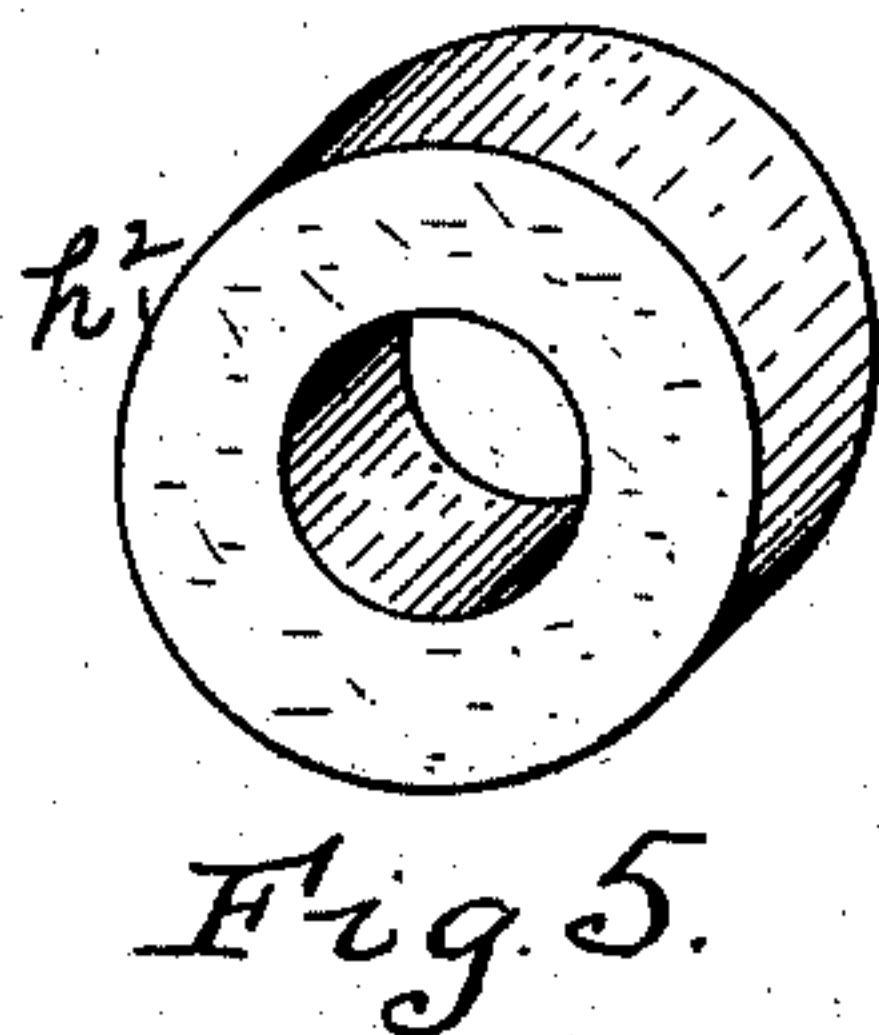
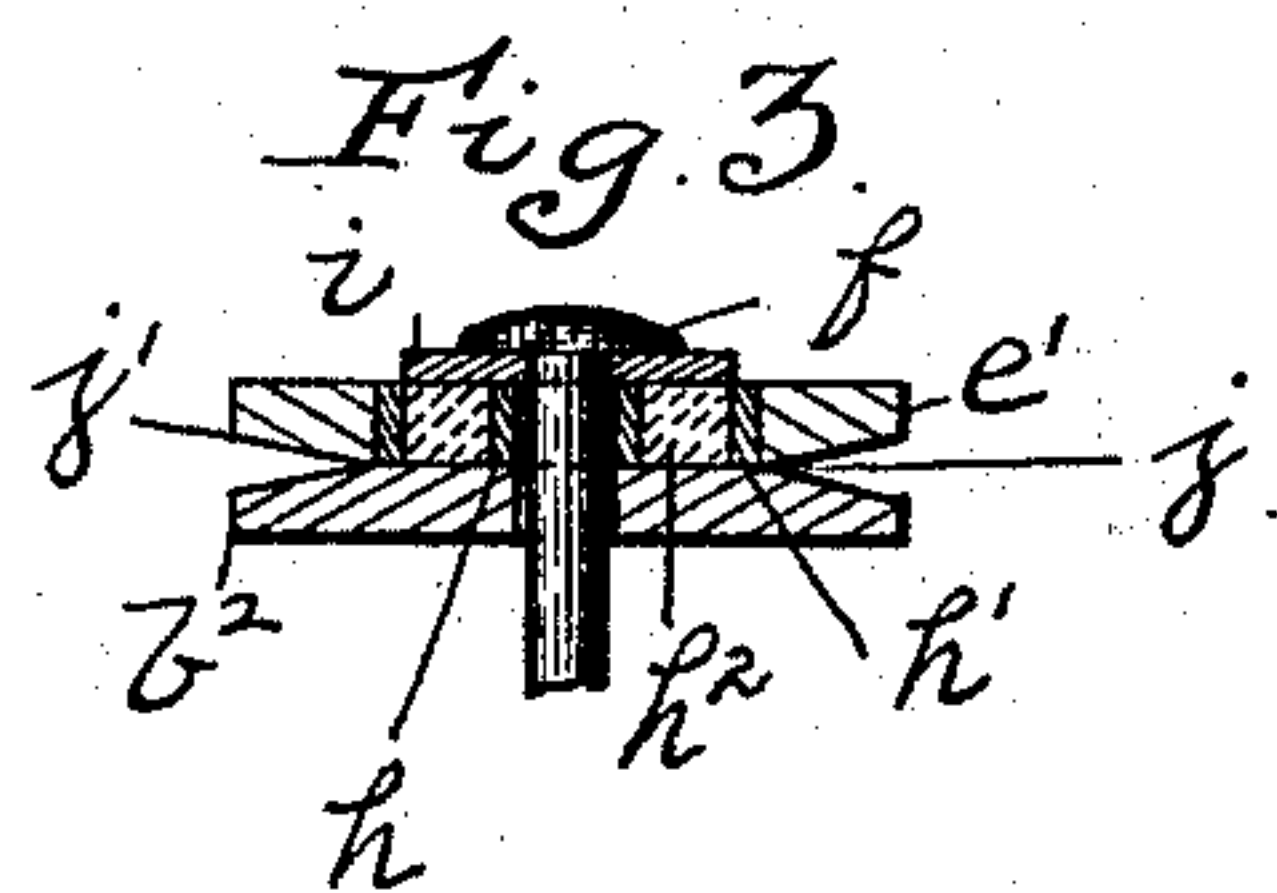
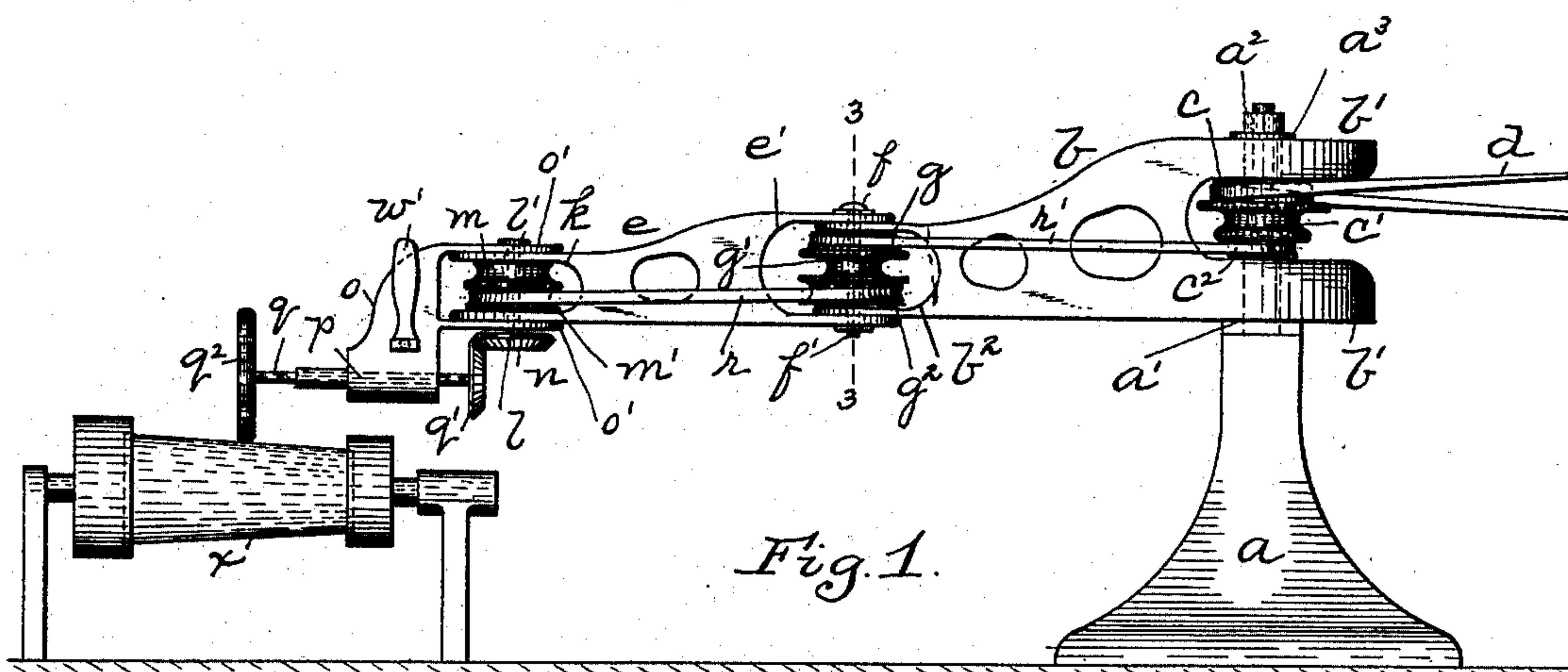


(No Model.)

H. A. RUHE.
MACHINE FOR ENGRAVING GLASSWARE.

No. 509,829.

Patented Nov. 28, 1893.



Witnesses:
John J. Hartman.
Luella H. Knox.

Inventor
Henry A. Ruhe.
By Kay, Tatten & Cooke
Attorneys.

UNITED STATES PATENT OFFICE.

HENRY A. RUHE, OF JEANNETTE, PENNSYLVANIA.

MACHINE FOR ENGRAVING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 509,829, dated November 28, 1893.

Application filed June 21, 1893. Serial No. 478,313. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. RUHE, a resident of Jeannette, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Machines for Engraving Glassware; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to machines for engraving glassware.

Heretofore in the art of engraving glassware it has been generally customary for the engraver to hold the article of glassware to be engraved in his hands and to force the same into contact with the engraving tool rotating before him. It was necessary therefore in such cases for the engraver to hold the article with a very steady hand in advancing and withdrawing it from the engraving tool. Engraving glassware in this manner required a great deal of skill and only skilled workmen could be employed to do the work.

The object of my invention is to provide a machine which will dispense with the holding of the glassware in the hands and the skill attending such operation, and by the employment of which inexperienced workmen can readily learn to engrave in as acceptable a manner as the most skilled engraver by the old method.

My invention comprises, generally stated, a jointed arm supported on a suitable standard and carrying a revolving engraving tool, (a bolt connecting the main arm with the forearm, and a rubber or like elastic bearing surrounding said bolt,) whereby said revolving engraving tool carried thereby may be forced down into contact with the glassware held within a suitable holder, and upon the downward pressure brought to bear on said arm being relieved said arm will resume its normal position.

My invention further comprises certain details of construction and combinations of parts, all of which will be fully hereinafter set forth and claimed.

To enable others skilled in the art to make and use my invention I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a side view of my improved machine. Fig. 2 is a plan view. Fig. 3 is a sec-

tion on the line 3—3 Fig. 2. Figs. 4, 5 and 6 are enlarged views of the parts which go to make up the yielding joint, as will more fully appear.

Like letters indicate like parts in each.

The standard *a* is provided at the upper end thereof with the bearing *a'* upon which are journaled the arm *b*, having the bifurcated ends *b'*, and the loose pulleys *c*, *c'*, *c''* of different diameters according to the speed desired, as will more fully hereinafter appear. A belt *d* connects up the pulley *c* to the source of power. A nut *a''* with an interposed washer *a'''* acts to hold the arm *b* and pulleys *c*, *c'*, *c''* in position on said bearing *a'*. The opposite end of the arm *b* is bifurcated as at *b''*. The bifurcated ends *b''* of the arm *b* are pivoted to the bifurcated ends *e'* of the fore arm *e*. This pivotal connection is made by means of the bolt *f*. This bolt *f* passes down through the bifurcated ends *b''* *e'* of the arm *b* and fore arm *e*, respectively, and through the center of the pulleys *g*, *g'*, *g''* interposed between said bifurcated ends, whereby said pulleys are free to revolve on said bolt *f* as a bearing.

In order to provide for the yielding or canting of the forearm *e* two concentric rings *h*, *h'* of brass or other suitable metal surround the bolt *f* at the upper end thereof below the washer *i*, said rings fitting within a seat formed for them in the upper bifurcated end *e'* of the forearm *e*. Interposed within the annular space formed between said concentric rings *h* *h'* is the rubber annulus *h''* as clearly shown in Fig. 3. This annulus may be formed of any suitable yielding or elastic material. The bifurcated ends *b''* and *e'* of the arm *b* and forearm *e* are circular in form and taper from the thick central portion *j* to the thinner periphery *j'* so that when said bifurcated ends are connected in the manner described and the forearm *e* is canted there will be sufficient space between the contiguous faces of said bifurcated ends to allow for the necessary play in the canting of said forearm *e*. The bolt *f* is held in place by means of the nut *f'*. The outer end of the forearm *e* is likewise bifurcated as at *k* and journaled in said bifurcated ends *k* is the bolt *l* having rigidly secured thereto the pulleys *m*, *m'* and the bevel gear *n*. The bolt also passes through lugs *o'* on a hanger *o* and thereby

connect said hanger to said forearm *e*. The bolt *l* is held in place by means of the nut *l'* engaging the upper end thereof.

The hanger *o* is provided with the bearing *p* within which is journaled the shaft *q*, said shaft having at the inner end thereof the bevel gear *q'* which meshes with the bevel gear *n*, and at the outer end thereof the engraving tool *q''*. A belt *r* connects one of the pulleys *g*, *g'*, *g''* with one of the pulleys *m*, *m'* and a belt *r'* connects from one of the pulleys *c'*, *c''* to one of the pulleys *g*, *g'*, *g''* and so transmits power to the engraving tool *q''* through the gears *n*, *q'*.

In order to properly brace the forearm *e* and at the same time allow of its being swung around in different positions according to the angle at which it is desired to bring the engraving tool into contact with the glassware, I employ the brace rod *s* pivoted at *s'* to the arm *a* and at *s''* to the brace rod *t*, said rod *t* being pivoted at *t'* to the forearm *e*. A brace rod *u* is pivoted at *u'* to the rod *t* and at *u''* to the rod *v*, which in turn is pivoted at *v'* to the outer end of the forearm *e*. By this arrangement of the brace rods the forearm is properly supported and yet allowed to swing in all directions in a horizontal plane.

Projecting from the hanger *o* is the rod *w* provided with the handle *w'* to force down the forearm *e* to bring the engraving tool into contact with the glassware. The glassware, such as a tumbler *x*, may be held within a suitable holder which admits of the rotation of the tumbler while held therein.

The operation of my improved engraving machine is as follows: The belts for transmitting rotary motion to the engraving tool having been adjusted on the proper pulleys according to the speed desired, and the article of glassware to be engraved having been inserted in the holder, the operator then grasps the handle *W'* and swings the forearm *e* around to the position at which the engraving tool *q''* when forced down will strike the glassware at the proper angle. When the forearm *e* has been brought to the proper position, the operator then presses down on the handle *v''*. This pressure applied to the handle *q''* will force the ring *h* against the rubber annulus *h''* and compress the same on the opposite side from that at which the pressure is applied. This compression of the rubber annulus *h''* will allow the forearm *e* to yield or cant in the direction of the glassware until the engraving tool *q''* comes in contact therewith. The fact that the bifurcated ends *b''* and *e'* of the arm *b* and forearm *e*, respectively, are thinner at their outer edges than

at the center thereof also aids in permitting of the yielding or canting of said forearm *e*.

By the above machine the necessity of holding the glassware in the hand is done away with, and any inexperienced person can in a short time learn the art of engraving. The operator merely forces the engraving tool into contact with the glassware, and upon releasing the pressure the tool springs away from the glassware so that the engraving does not depend on the steadiness of the hands of the engraver as in the manner of engraving now employed.

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

1. In a machine for engraving glassware, the combination with a suitable standard, of a jointed arm projecting therefrom carrying a revolving tool, a bolt connecting the main arm with the forearm, and a rubber or like elastic bearing surrounding said bolt, substantially as and for the purposes set forth.

2. In a machine for engraving glassware, the combination with a suitable standard, of a jointed arm projecting therefrom carrying a revolving tool, a bolt connecting the main arm with the forearm, two concentric rings surrounding said bolt, and a rubber or like elastic annulus interposed between said concentric rings, substantially as and for the purposes set forth.

3. In a machine for engraving glassware, the combination with a suitable standard, of a jointed arm projecting therefrom carrying a revolving tool, a bolt connecting the main arm with the forearm, said main arm and forearm having the connecting ends thereof of greater thickness at or about the point at which said bolt passes through than at the outer edges thereof, two concentric rings surrounding said bolt, and a rubber or like elastic annulus interposed between said concentric rings, substantially as and for the purposes set forth.

4. In a machine for engraving glassware, the combination with a suitable standard, of an arm projecting therefrom carrying a revolving tool, said arm consisting of a main arm and a forearm connected by a yielding joint, and brace rods pivoted to said main arm and forearm to support said forearm and permit of its swinging in a horizontal plane, substantially as and for the purposes set forth.

In testimony whereof I, the said HENRY A. RUHE, have hereunto set my hand.

HENRY A. RUHE.

Witnesses:

JAMES I. KAY,
J. N. COOKE.