

No. 685,433.

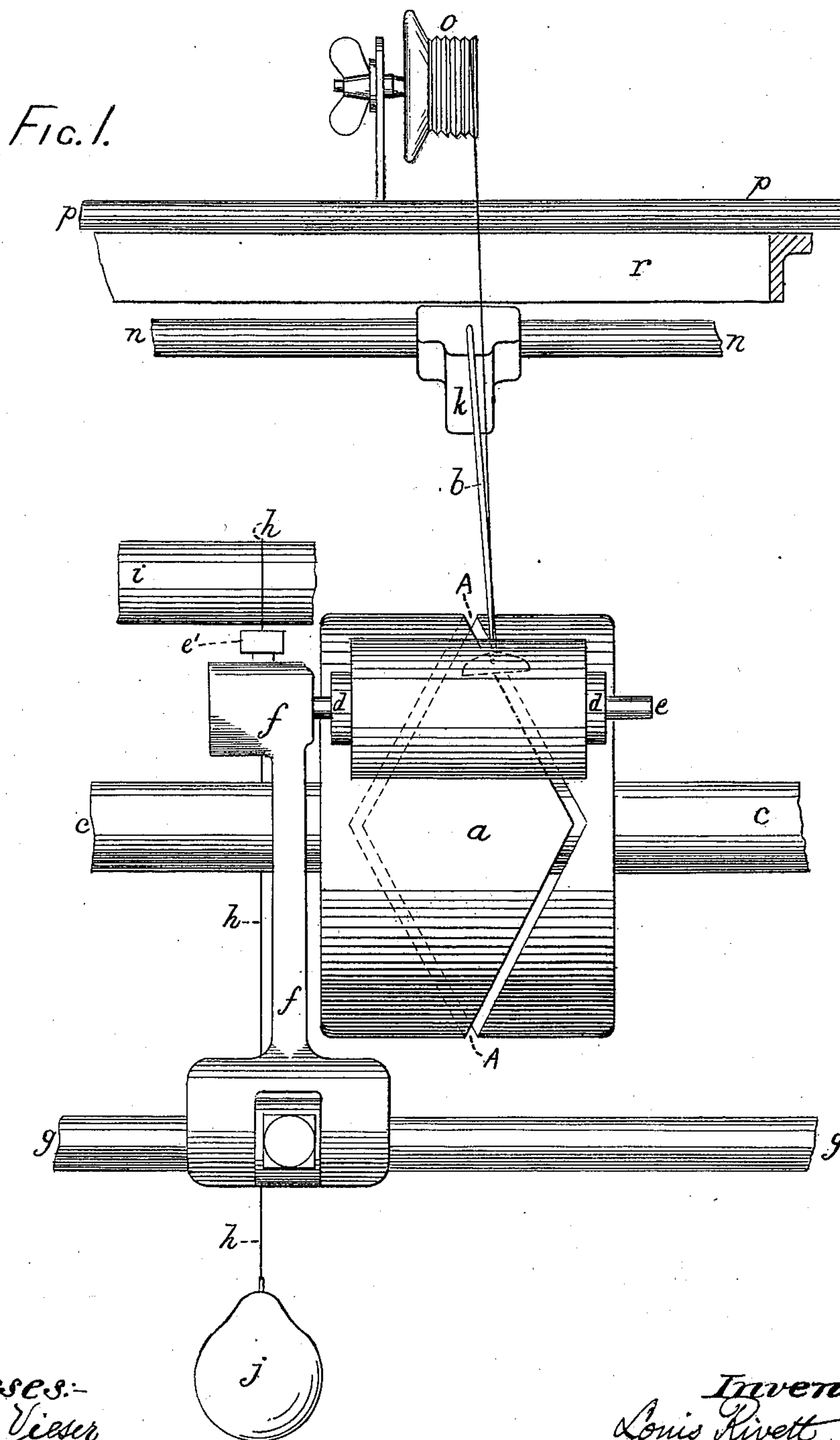
Patented Oct. 29, 1901.

L. RIVETT & S. OLDHAM.
APPARATUS FOR WINDING YARNS OR THREADS.

(Application filed Aug. 18, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:-
Edward Vieser
George Barry Jr.

Inventors.
Louis Rivett
Samuel Oldham
by attorneys
Brown & Seward

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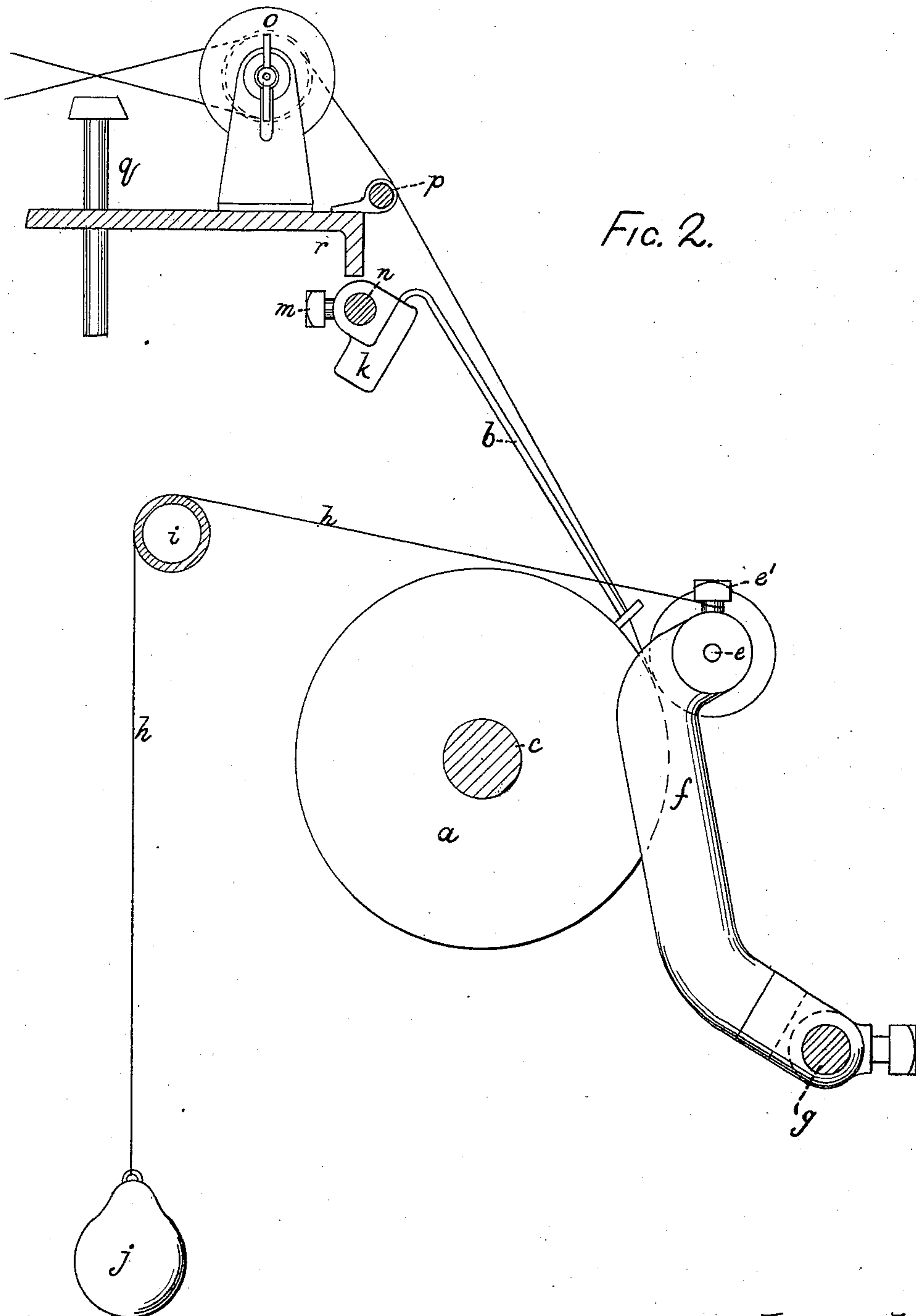
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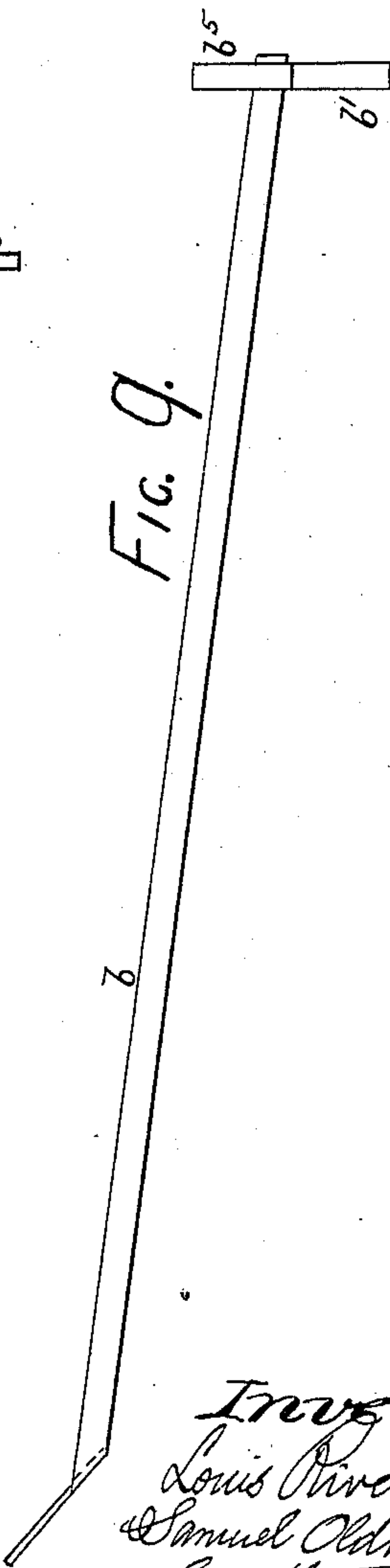
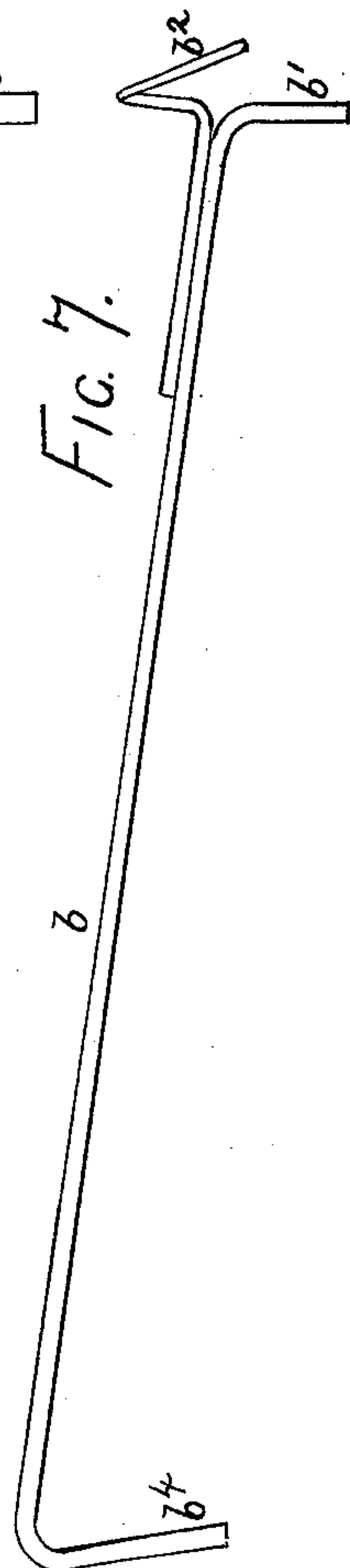
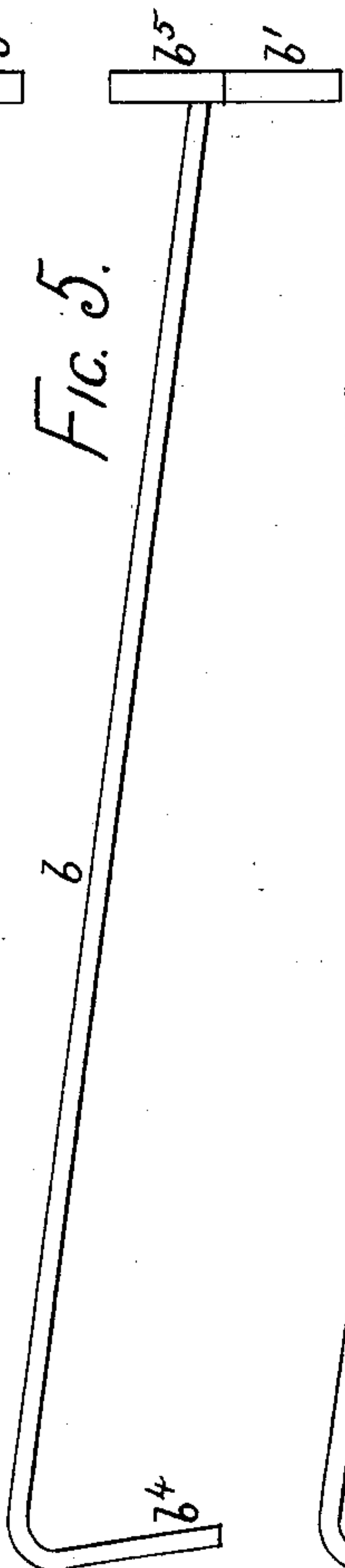
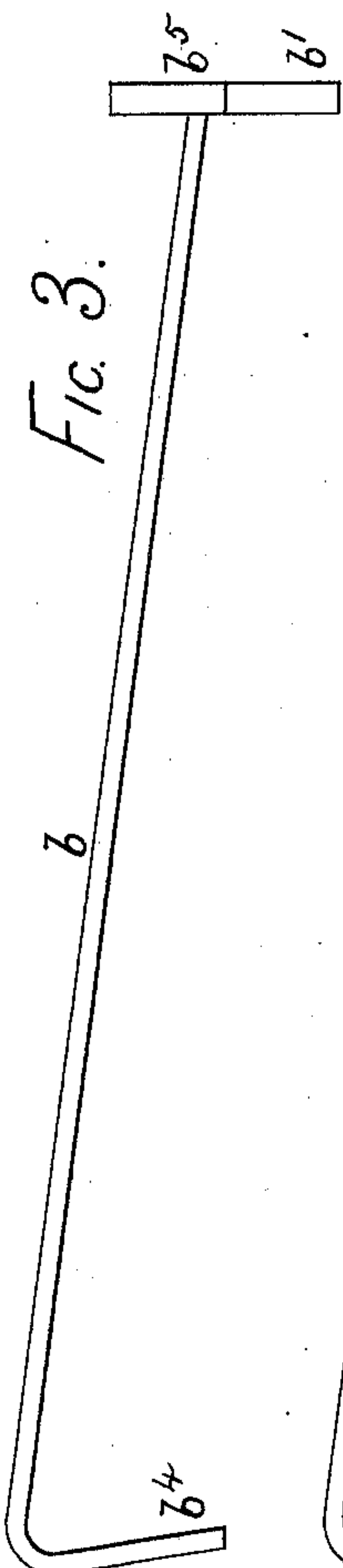
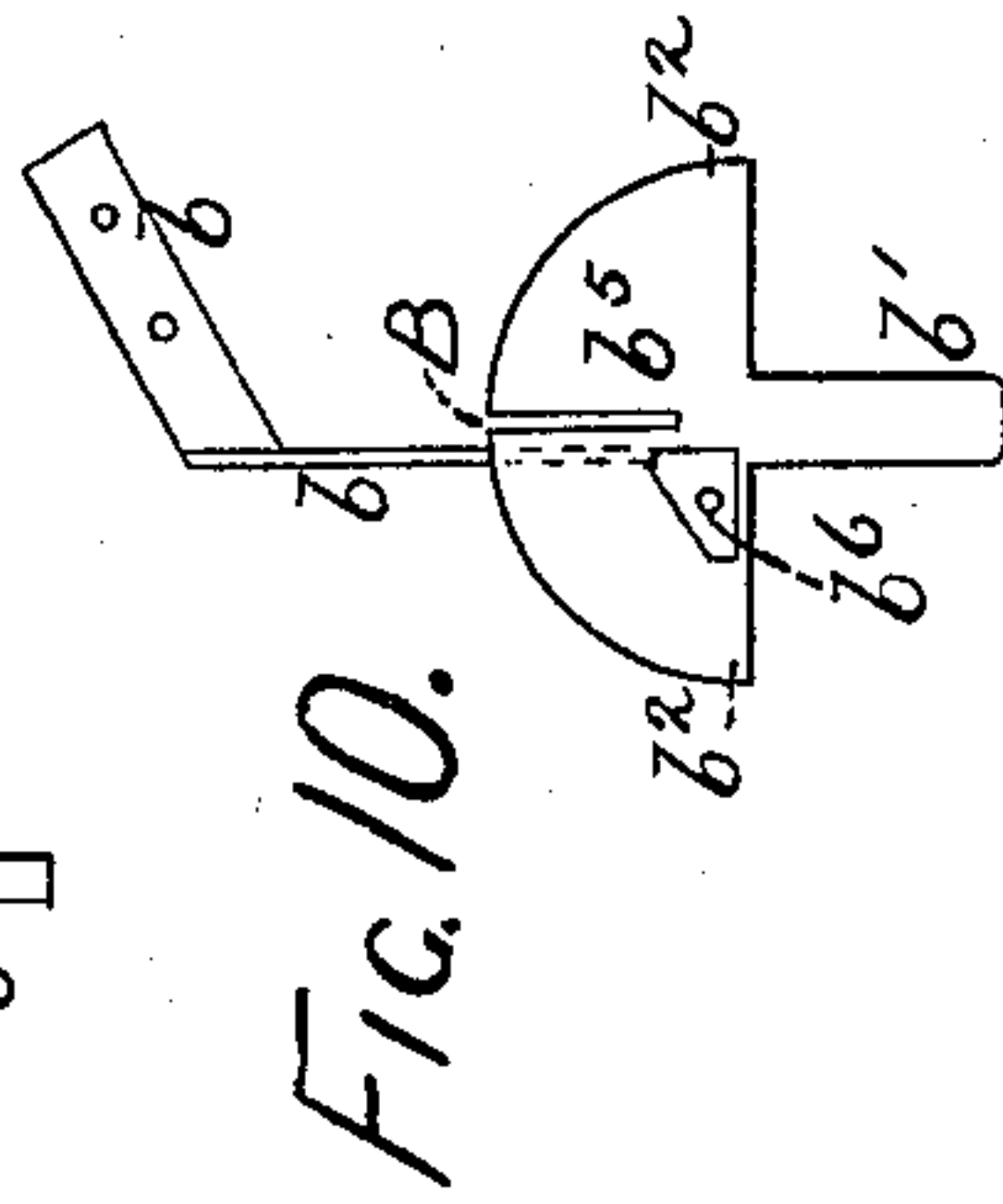
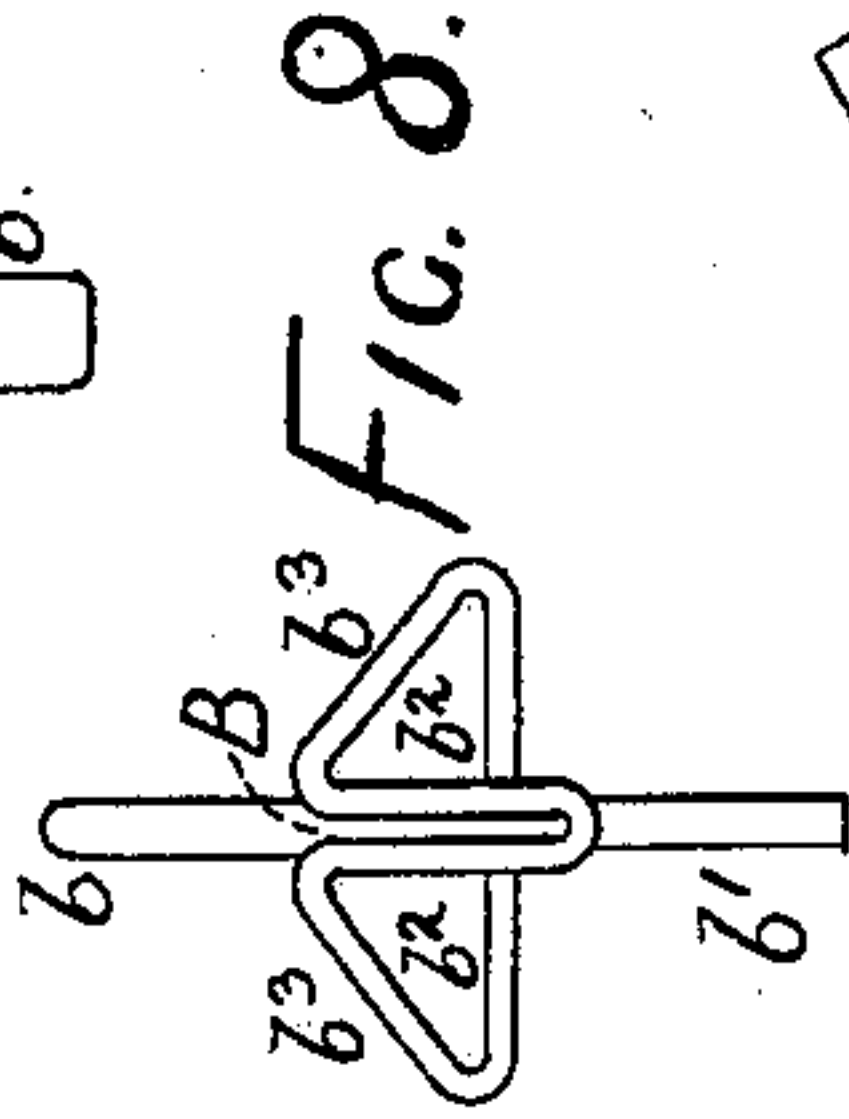
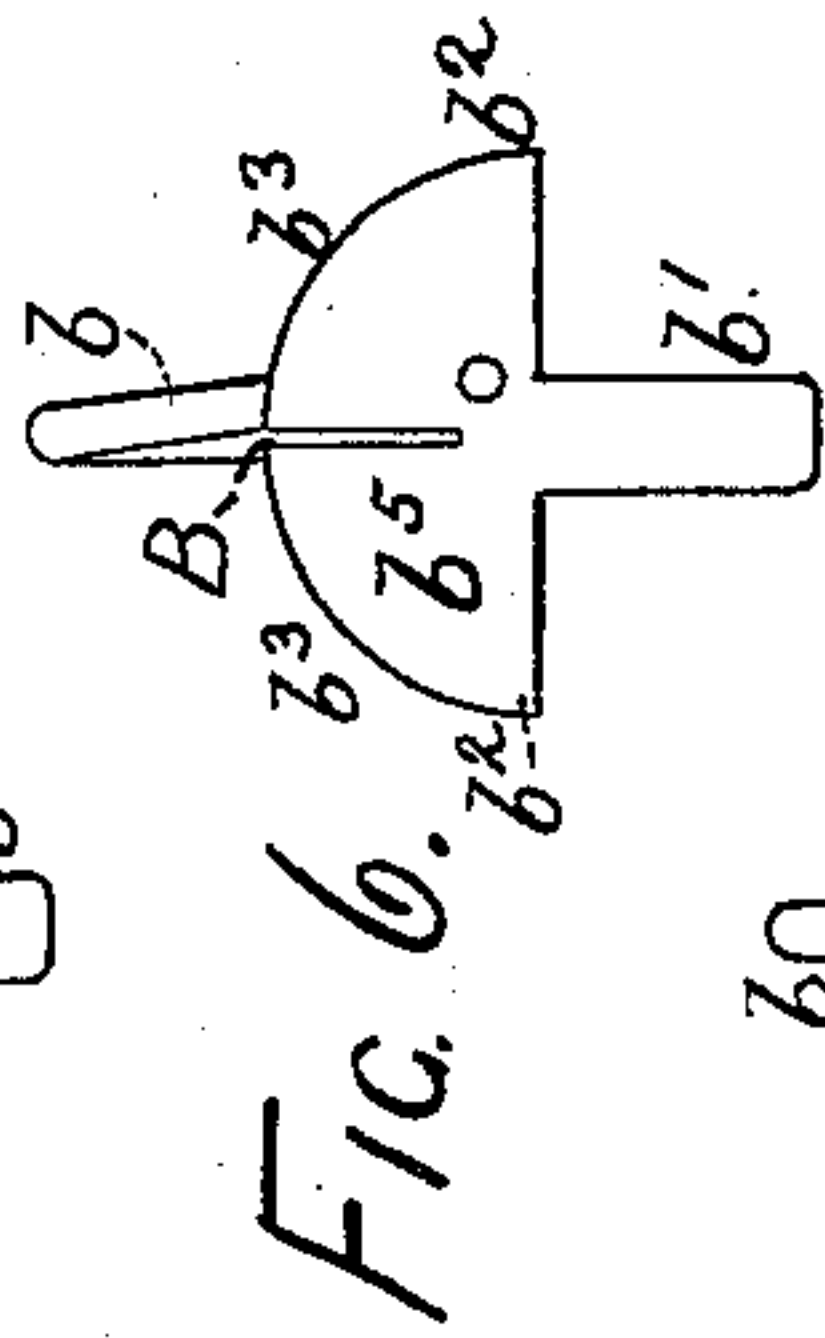
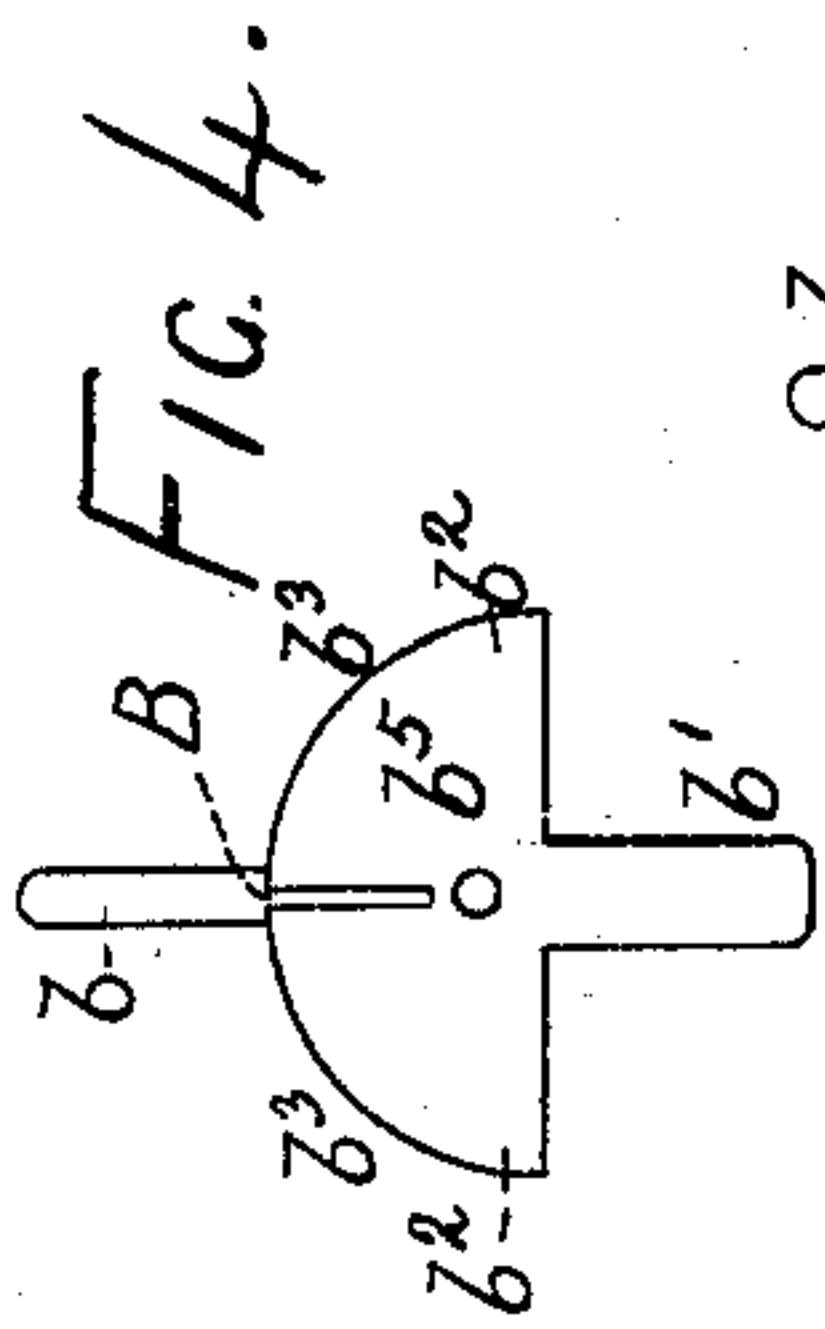
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

LOUIS RIVETT, OF HEATON CHAPEL, AND SAMUEL OLDHAM, OF HEATON NORRIS, ENGLAND.

APPARATUS FOR WINDING YARNS OR THREADS.

SPECIFICATION forming part of Letters Patent No. 685,433, dated October 29, 1901.

Application filed August 18, 1899. Serial No. 727,667. (No model.)

To all whom it may concern:

Be it known that we, LOUIS RIVETT, manufacturer, a resident of Grove House, Heaton Chapel, and SAMUEL OLDHAM, manager, a resident of 4 Clarendon street, Heaton Norris, in the county of Lancaster, England, subjects of the Queen of the United Kingdom of Great Britain and Ireland, have invented certain new and useful improvements in apparatus for winding yarns or threads applicable to winding-machines, clearing-machines, gassing-machines, and other analogous machines in which yarns or threads are wound, of which the following is a specification.

This invention consists in improvements in apparatus for winding yarns or threads which are applicable to winding-machines, clearing-machines, gassing-machines, and other analogous machines in which yarns or threads are wound.

The object of our invention is to enable yarns or threads to be wound into the form of cheeses or balls onto bobbins, spools, or tubes without heads and into other analogous forms more rapidly and efficiently than has been possible with the means hitherto provided and to enable machines for winding yarns or threads, machines for clearing yarns or threads, machines for gassing yarns or threads, and other analogous machines in which yarns or threads are wound into the form of cheeses or balls on bobbins, spools, or tubes without heads or into other analogous forms to be made simpler in construction and more efficient and simpler and more convenient in use than such machines as hitherto constructed have been.

Our invention is applicable to winding-frames, either for winding yarns or threads singly or winding yarns or threads two or more together, to gassing-frames, to clearing-frames, and other analogous machines, whether such machines be arranged to wind the yarns or threads operated upon from cops, from bobbins, from hanks, or from other bodies or forms upon or into which they may have previously been wound.

In order to illustrate our invention, we have shown it in the accompanying drawings as applied to a gassing-machine.

In the accompanying drawings, Figure 1 is a front elevation, and Fig. 2 a transverse section, through a gassing-machine, showing so much of such machine as is requisite for the illustration of our invention; and Figs. 3, 5, 7, and 9 are side elevations, and Figs. 4, 6, 8, and 10 are end elevations of some of the forms of the guide wires or arms which may be employed according to our invention.

The same letters of reference are employed to indicate corresponding parts in all the said figures.

According to our invention we provide for the winding of each yarn or thread or group of yarns or threads to be wound in a machine a winding-drum *a*, provided with a circumferential groove or slit *A* of an oblique or undulating or zigzag form, arranged to approach each edge of the winding-drum as often as may be considered desirable in the construction of such winding-drum, and a guide wire or arm *b*, which is capable of oscillation and provided with a part *b'* to engage with the groove or slit *A* and is provided with a notch *B* to guide the yarn or thread or yarns or threads to the bobbin, spool, or tube or other object on which it or they is or are to be wound, and with lateral projections *b*², with inclined or curved surfaces *b*³, to guide the yarn or thread or yarns or threads into the notch *B*, as will be hereinafter explained. The winding-drum *a* is mounted fast upon a shaft *c*, supported and arranged to be revolved in any suitable manner. The bobbin, spool, or tube or other object *d* on which the yarn or thread or yarns or threads to be operated upon is or are to be wound by friction with the surface of the winding-drum *a* may be supported in any suitable manner, so that such bobbin, spool, or tube or other object *d* or the surface of the yarn wound thereon may be brought into contact with the surface of the winding-drum *a*, and in the arrangement illustrated the bobbin, spool, or tube or other object *d* is supported by a projecting pin or axle *e*, projecting from a cradle or frame *f*, capable of being oscillated independently of the other cradles or frames used in the machine upon a bar *g*, extending lengthwise of the machine and supported in any suitable manner.

Any suitable means of causing the bobbin, spool, or tube or other object d or the yarn or thread wound thereon to be pressed against the drum a may be employed. In the arrangement illustrated a cord or chain h , attached at one end to the set-screw e' , holding the pin or axle e in position, and passing over the gas-pipe i and having a weight j attached at its other end, serves to press the bobbin or spool or other object d or the yarn or thread wound thereon against the surface of the drum a , so that the rotation of the drum a will cause the revolution of such bobbin, spool, or other object d .

The guide wire or arm b , which is shown more clearly in Figs. 3 and 4, is provided at one end with a part b^4 , capable of being oscillated in a hole formed in a bracket k , secured, by means of a set-screw m , upon a rod n , extending lengthwise of the machine and supported in any suitable manner. At the free end of the guide wire or arm b there is secured a plate b^5 , provided with a projecting part b' to engage with the groove A in the drum a , so that the revolution of the drum a shall cause the guide wire or arm b to oscillate about the axis of the part b^4 . The plate b^5 is formed with a hole, into which the stem of the guide wire or arm b is secured. The plate b^5 is also formed with lateral projections b^2 , which are made to bear upon or be in proximity to the surface of the drum a and provided with inclined (in this case curved) parts b^3 , leading to the notch B , formed between them. The bowls or pulleys o , of which only one is indicated in the accompanying drawings, the guide-rod p , and the gas-burner q are arranged in the ordinary manner.

When the guide wire or arm b is placed in working position in the bracket k and the projection b' has been placed in engagement with the slit A in the drum a and the drum a is caused to revolve, the guide wire or arm b is made to oscillate, and then when the yarn or thread to be operated upon (in this case to be gassed) has after in this case being passed around the bowls or pulleys o been connected to a bobbin or spool or tube d , placed upon the pin or axle e , and the frame or cradle f is moved into position to bring the bobbin, spool, or other object d upon the pin or axle e or the yarn or thread wound upon such bobbin, spool, or other object d into contact with the drum a the revolution of the said bobbin, spool, or other object d will cause the yarn or thread to be wound upon such bobbin, spool, or other object d and subject the yarn or thread to tension, so that the plate b^5 , being caused to bring one or other of the inclined faces b^3 against the said yarn or thread, will raise it from the surface of the drum a , and such yarn or thread will pass into the notch B , so that in the continued revolution of the drum a the said yarn or thread will be moved to and fro with the guide wire or arm b , so as to be guided in the

manner required onto the bobbin, spool, or tube or other object d upon the pin or axle e .

The guide wire or arm b illustrated in Figs. 5 and 6 only differs from that illustrated in Figs. 3 and 4 in that it is slightly bent and in that the hole in the plate b^5 is formed somewhat to one side thereof, so that the plate b^5 may be less liable to breakage.

The guide wire or arm b illustrated in Figs. 7 and 8 differs from that illustrated in Figs. 3 and 4 in that the projection b' to engage with the slit A of the winding-drum is formed by the end of the shank of the guide wire or arm b and in that the projections b^2 and notch B are formed by a piece of wire being bent to a suitable shape and soldered or brazed to the shank of the guide wire or arm b .

The guide wire or arm b illustrated in Figs. 9 and 10 is formed as to its shank out of a spring bent at one end so as to be capable of being screwed against the rail r , on which the bowls or pulleys o of a gassing-machine are mounted, or other suitable support and secured at its free end to a plate b^5 , similar in shape to that illustrated in Figs. 5 and 6 and formed with a slit through which the spring is passed, a rivet b^6 being employed to secure the plate b^5 to the spring. The guide wire or arm b illustrated in Figs. 9 and 10 bends instead of being turned about an axis while being moved by the winding-drum a , in conjunction with which it is employed.

The application of winding-drums a and guide wires or arms b in accordance with our invention to other machines for winding yarns or threads singly or two or more together can obviously be readily accomplished without further explanation.

The employment in accordance with our invention of a guide wire or arm in conjunction with a winding-drum provided with a circumferential groove or slit of an oblique or undulating or zigzag form enables the yarn or thread being wound by means of such winding-drum to be very rapidly traversed from side to side, and so enables the winding of yarns or threads onto bobbins or spools or other objects to be accomplished at a much higher speed than in machines in which the yarns or threads being wound are made to pass through the slits of the winding-drums by which they are wound onto bobbins, spools, or other objects. Furthermore, the employment of the guide wire or arm provided with lateral projections having inclined parts leading to a notch formed or provided between them enables the commencement of winding and the piecing of broken yarns or threads to be very quickly and conveniently accomplished, as there is no occasion for the attendant to place the yarn or thread or yarns or threads in the notch of the guide wire or arm, because such guide wire or arm will very quickly in the course of its movement from side to side pass beneath the said yarn or thread or yarns or threads and receive it or

them into its notch. Furthermore, the employment of the guide wires or arms, such as hereinbefore described, rendering unnecessary the employment of heavy traversing bars and also rendering unnecessary the employment of devices to enable the winding-drums to be stopped in order that yarns or threads may be led through them after the breakage or termination of the yarns or threads passing through them enables the machines to which our invention is applied to be made simpler in construction than machines as hitherto constructed for the same purposes.

What we claim, and desire to secure by Letters Patent, is—

1. In a yarn-winding apparatus, the combination of a winding-drum to receive contact of the bobbin, spool or tube and the yarn thereon, having an undulating circumferential groove approaching each edge of such drum, a support for a guide-arm, a guide-arm having one end held in one position by said support and one end free and its free end in engagement with the said groove and provided with a notch and lateral projections in proximity to the surface of the winding-drum and with faces leading from the surface of

the drum to the said notch, all arranged and operating for the purposes and substantially as described.

2. In a yarn-winding apparatus, the combination of a winding-drum to receive contact of the bobbin, spool or tube and the yarn thereon, having an undulating circumferential groove approaching each edge of such drum, a fixed support for a guide-arm, a guide-arm pivoted at one end to said support and having the other end free and its free end in engagement with the said groove and provided with a notch and lateral projections in proximity to the surface of the winding-drum and with faces leading from the surface of the drum to the said notch, all arranged and operating for the purposes and substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 9th day of August, 1899.

LOUIS RIVETT.
SAMUEL OLDHAM.

Witnesses:

JOHN WILLIAM THOMAS,
HOWARD CHEETHAM.