

No. 776,548.

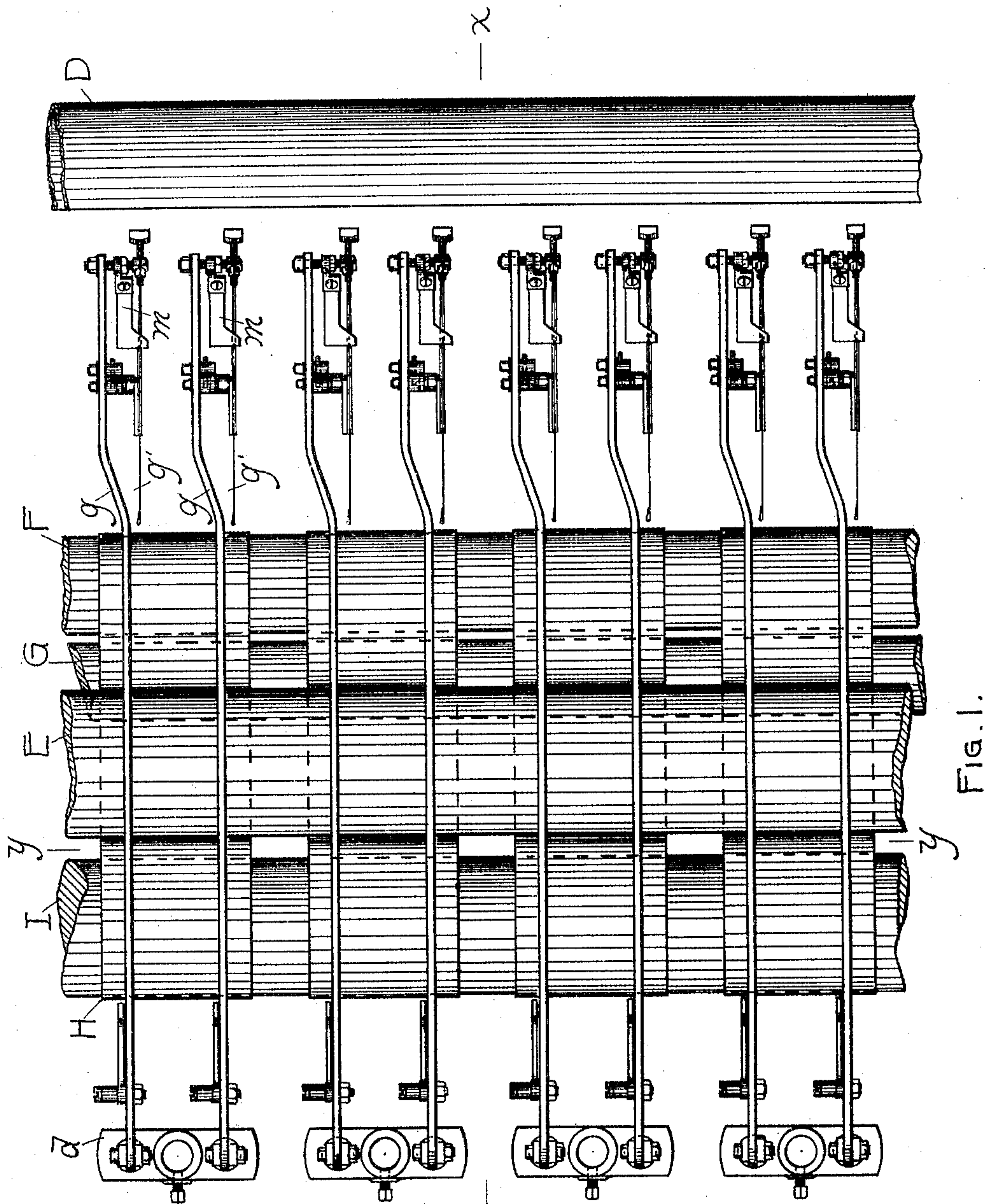
PATENTED DEC. 6, 1904.

W. READ & E. HEDIN.
MACHINE FOR CUTTING PILE FABRICS.

APPLICATION FILED APR. 22, 1904.

NO MODEL.

5 SHEETS—SHEET 1.



WITNESSES

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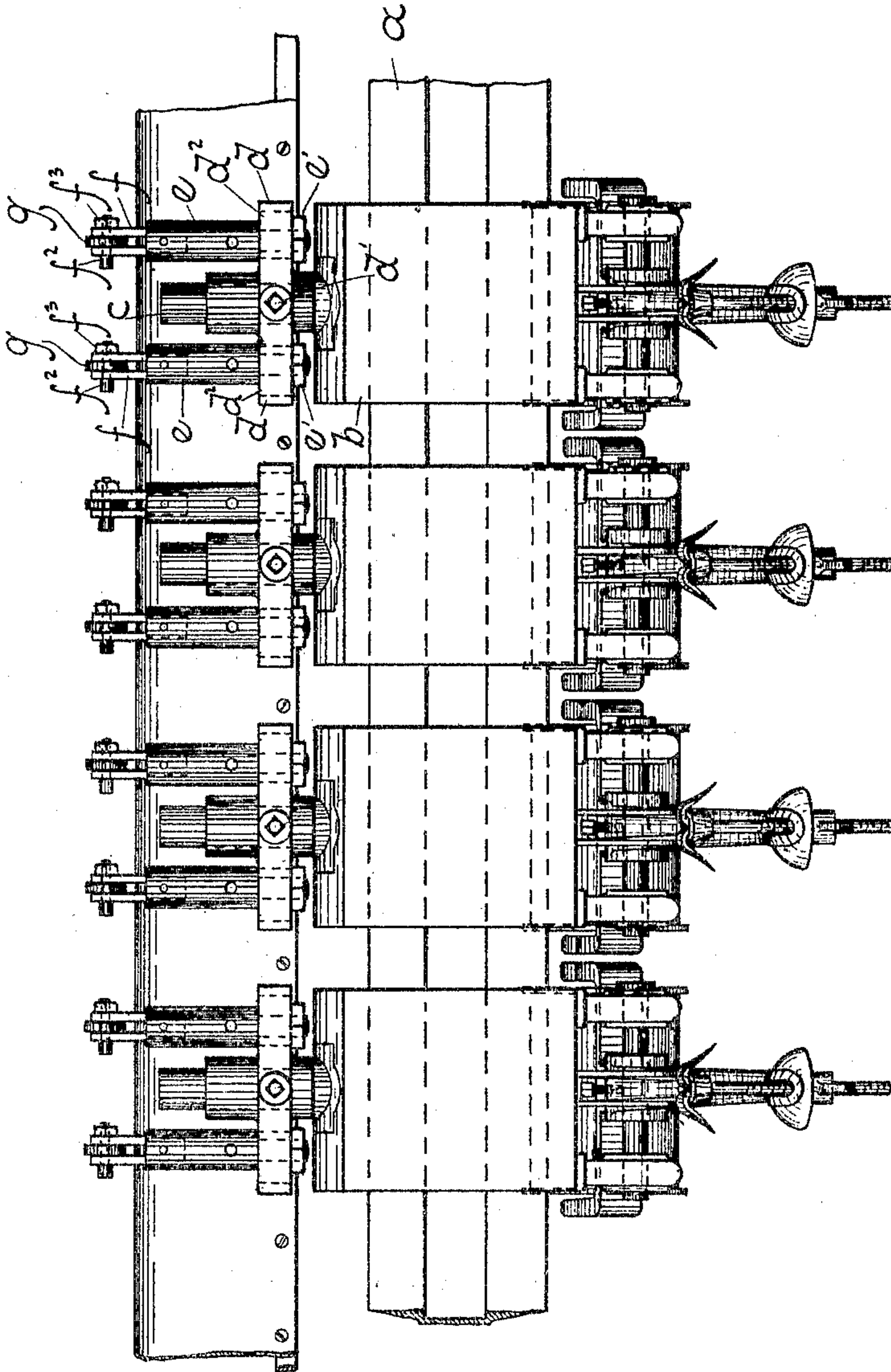


Fig. 2.

WITNESSES

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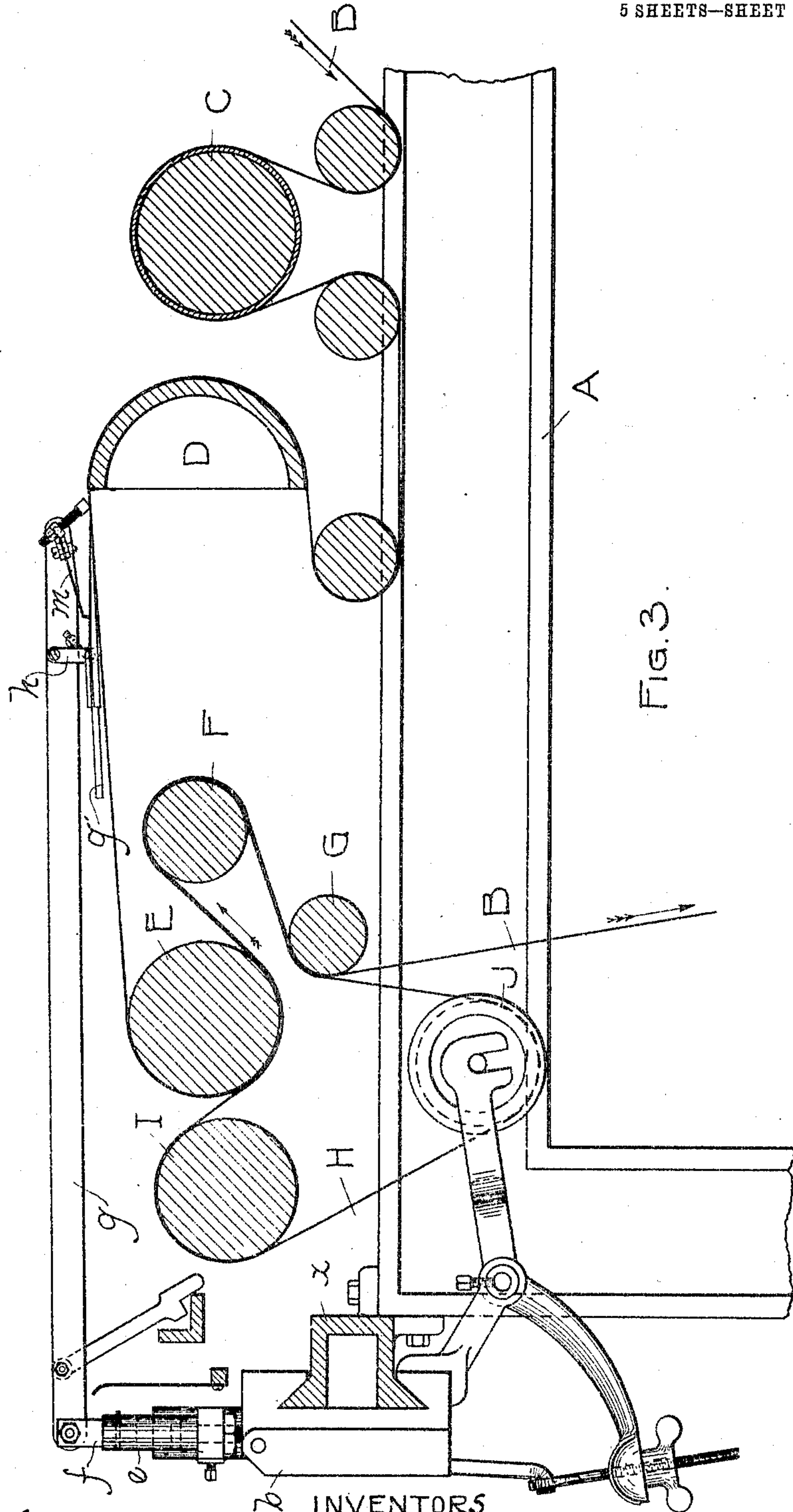
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5 SHEETS—SHEET 3.



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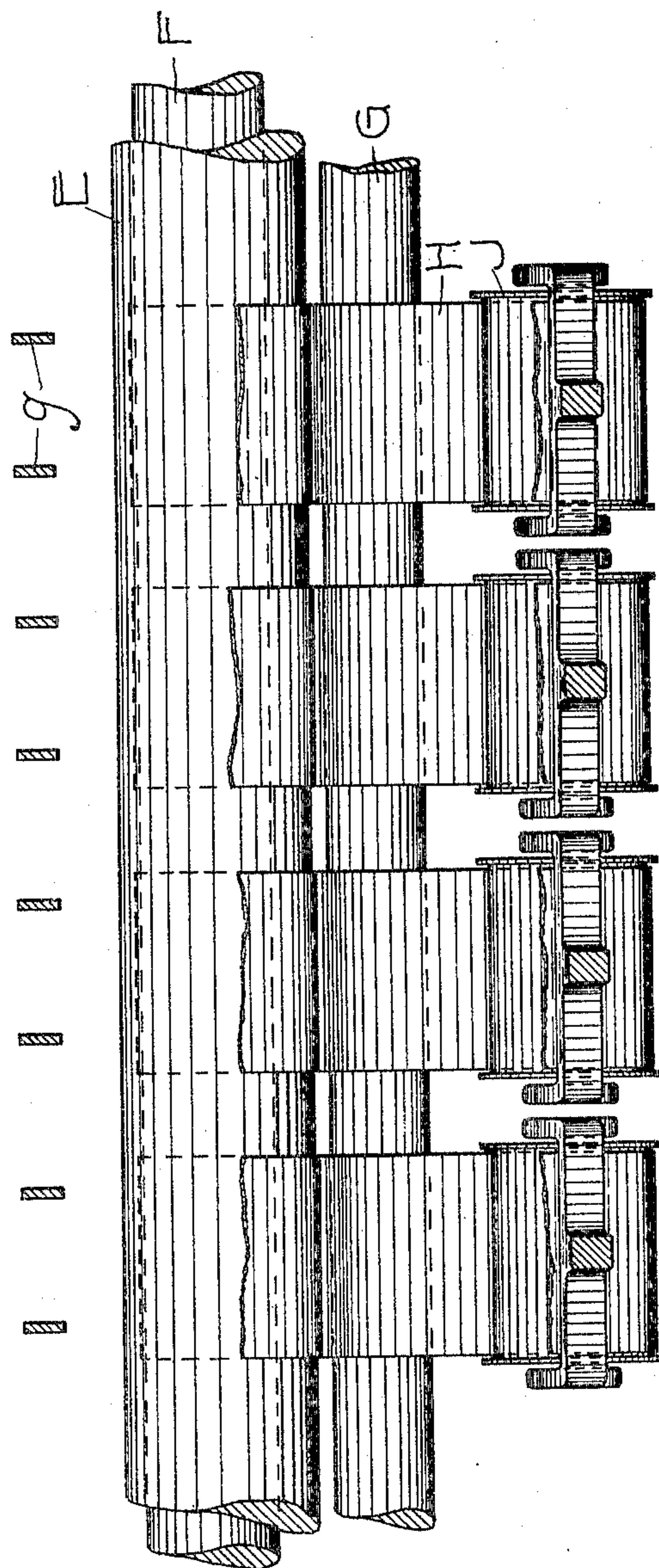


Fig. 4

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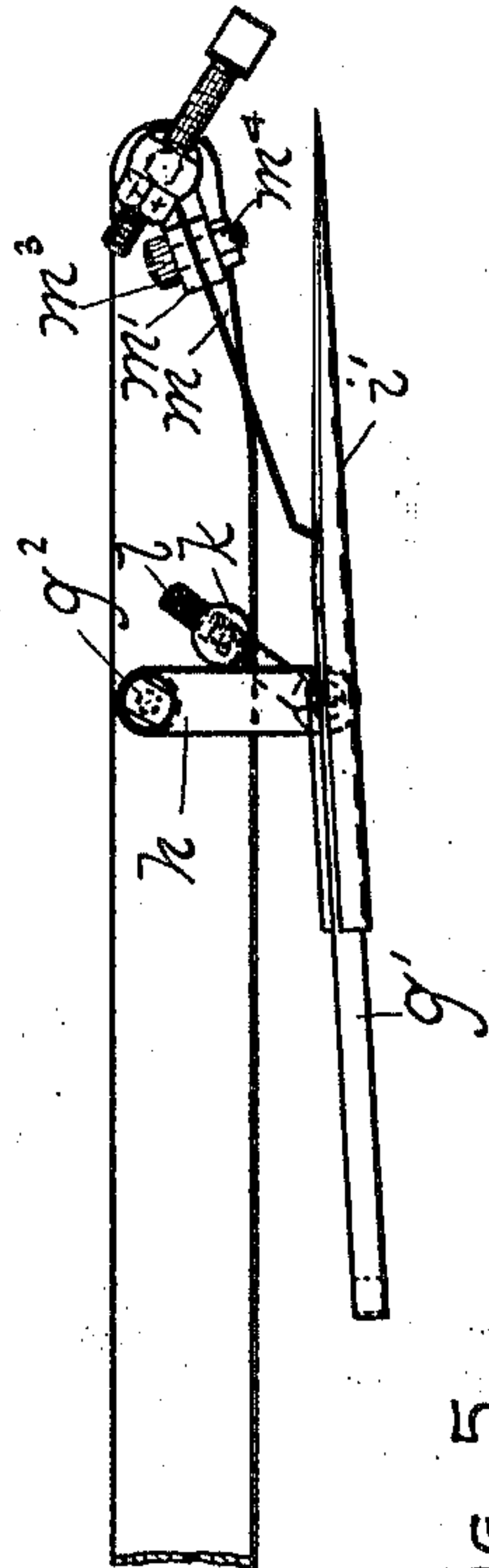
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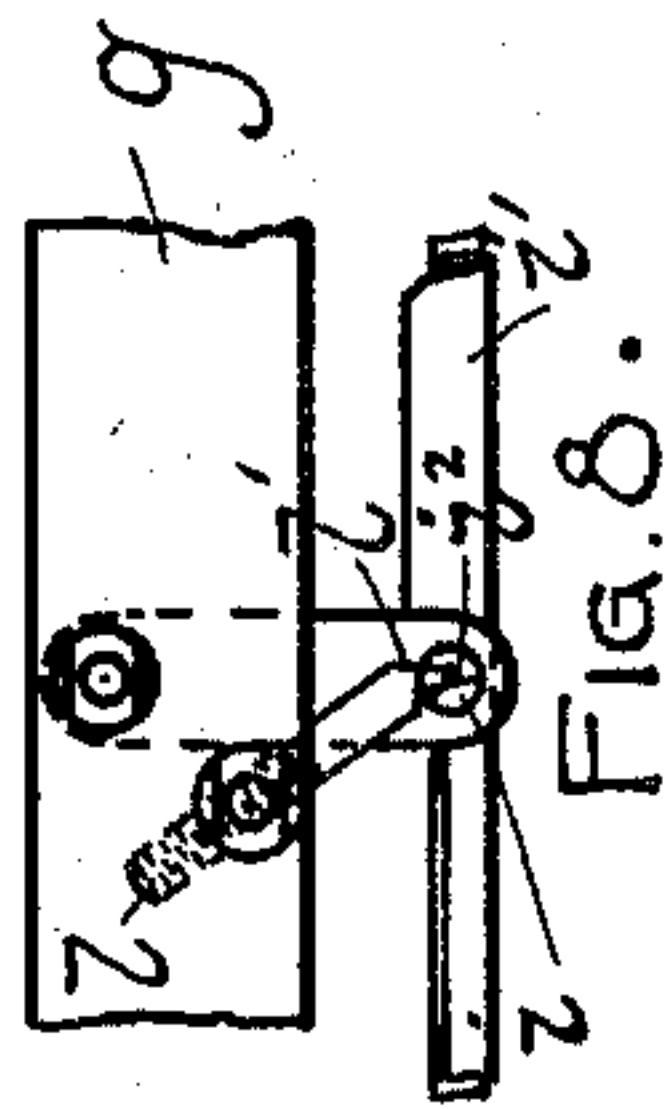
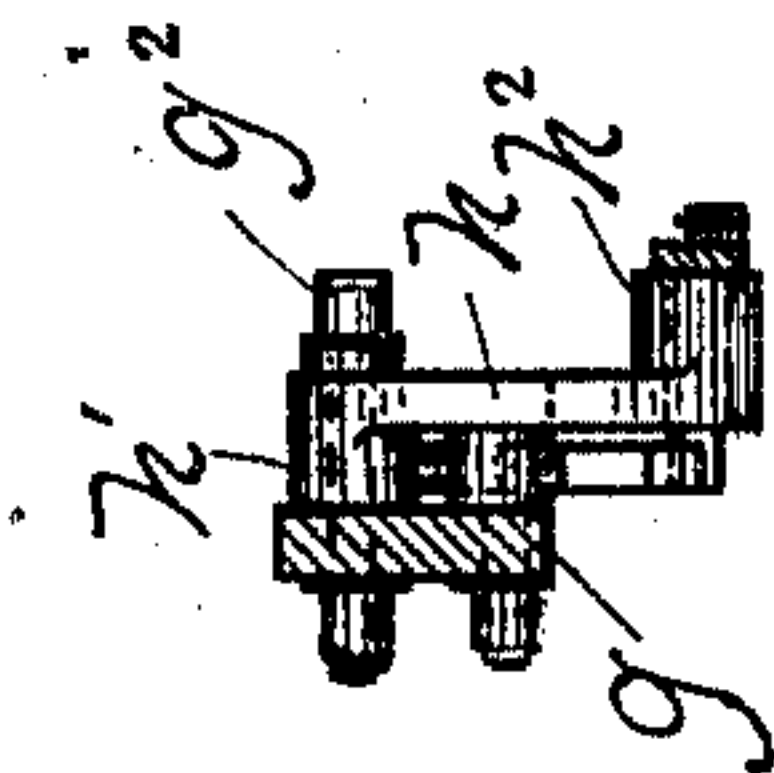
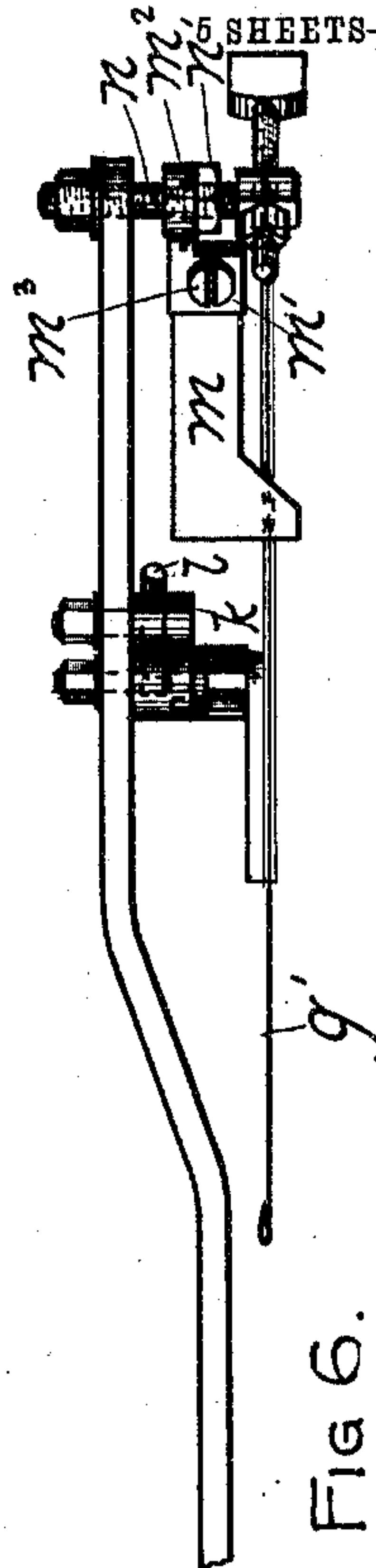
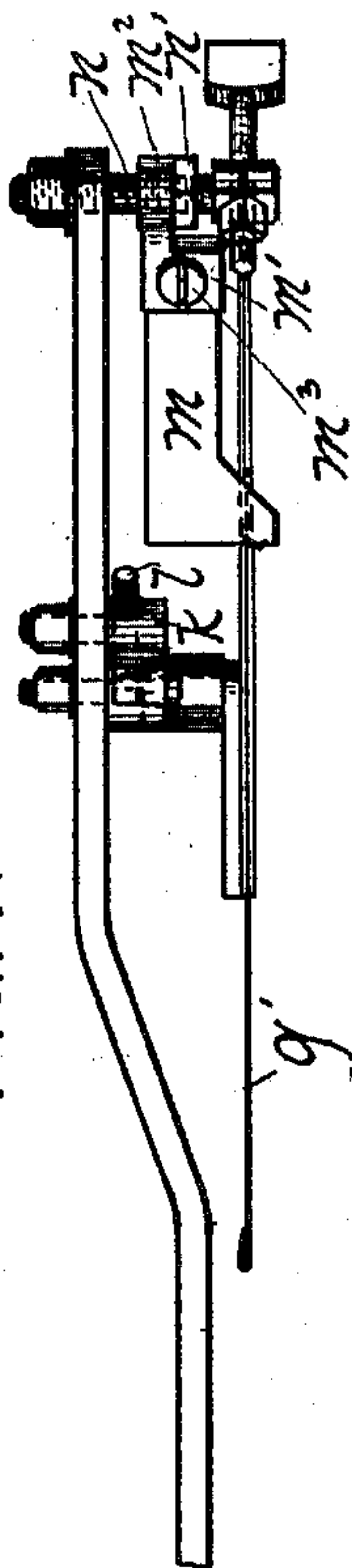


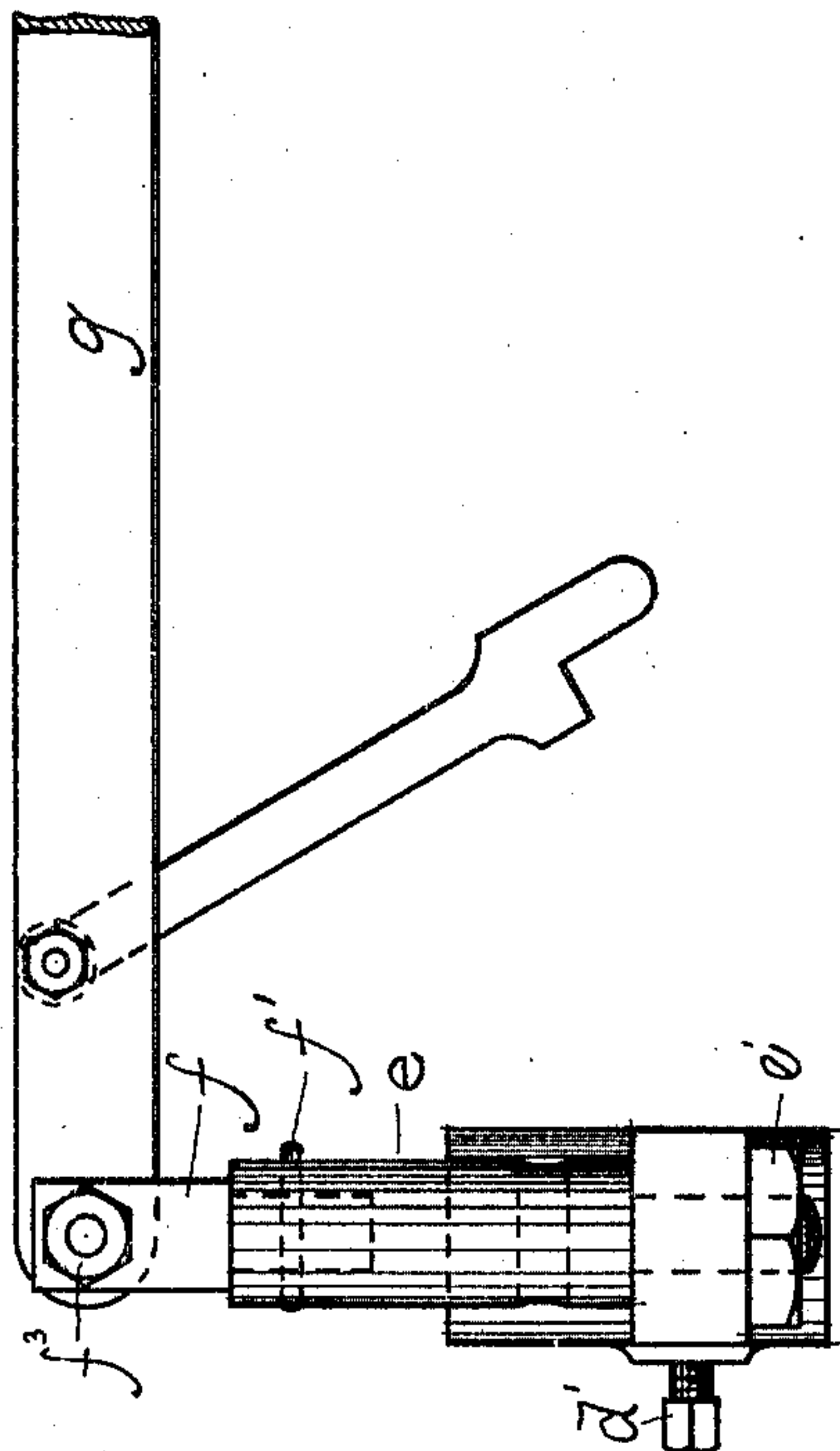
Fig. 8.



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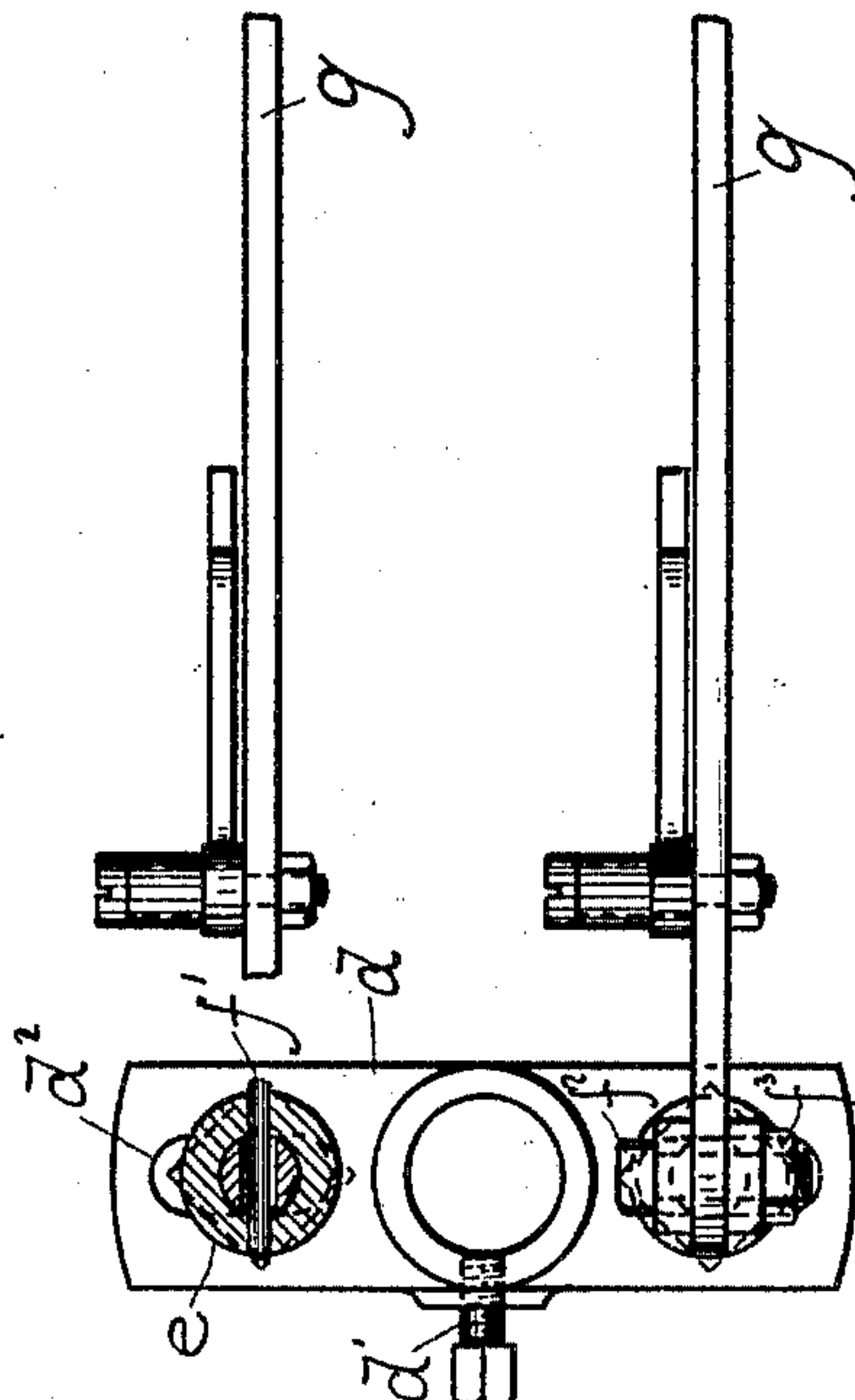


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UNITED STATES PATENT OFFICE.

WILLIAM READ AND ERIC HEDIN, OF WARWICK, RHODE ISLAND,
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MACHINE FOR CUTTING PILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 776,548, dated December 6, 1904.

Application filed April 22, 1904. Serial No. 204,334. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM READ and ERIC HEDIN, of Warwick, in the county of Kent and State of Rhode Island, have invented
5 certain new and useful Improvements in Machines for Cutting Pile Fabrics; and we do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a
10 full, clear, and exact description thereof.

The present invention relates to machines for cutting pile fabrics of that class in which a series of parallel knives is employed—such, for example, as is shown in the English patent to Keighley and Netherwood, No. 11,259
15 of 1890.

One object of the invention is to increase the number of knives employed and thereby correspondingly increase the capacity of the
20 machine.

To that end the invention consists in a construction and organization of parts whereby provision is made for twice the number of knives heretofore employed.

25 The invention further consists in certain constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings, Figure 1 is a plan view of a portion of a pile-cutting machine embodying our invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a longitudinal section on the line *x x*, Fig. 1. Fig. 4 is a cross-section on the line *y y*, Fig. 1. Fig. 5 is a side elevation of a knife, knife-arm,
35 and support. Fig. 6 is a plan view of the support with two knife-arms and knives, and Figs. 7 and 8 are details.

A represents the frame of the machine.

B is the traveling fabric, successive races
40 of which are to be cut as the fabric passes through the machine. The fabric passes over the card-covered roller C, over the curved frame D, and thence over the rollers E, F, and G. The roller E is what is known as a "taking-in" roll, and the fabric is held in contact therewith by a series of endless tension-belts H, which pass beneath the roller E, around

the rollers I, F, and G, and around a tension-pulley J.

Secured to the frame A is a bracket *a*, provided with dovetail ways on which the blocks or supports *b* may have sliding movements toward or from each other for the purpose of adjusting the position of the same. While provision is thus made for laterally adjusting the position of the blocks or supports *b*, it has been found in practice that such lateral adjustment is not necessary, and it is to be understood that so far as the features of invention herein described and claimed are
50 55 60 65 70 75 80 85
concerned it is entirely immaterial whether the supports *b* for the knife-arms are laterally adjustable or not. Mounted upon or secured to each of the supports *b* is a vertical standard *c*. Secured to the standard *c* is a cross-piece *d*, which is held in place upon said standard by a set-screw *d'*. The cross-piece *d* is provided with an elongated slot *d''* near each end thereof, and in each of these slots is secured a stud *e*, which is held in place by the clamp-nut *e'*. By loosening the clamp-nuts the studs *e* may be adjusted toward or from each other. In the upper end of each stud *e* is a longitudinal bore into which is placed the shank of a forked standard *f*. A pin *f'* passes transversely through the stud *e* and through the shank of the forked standard *f*. This pin *f'* fits the transverse hole in the shank of the forked standard; but the transverse hole in the stud *e* is made somewhat larger than the diameter of the pin *f'* and so that the forked standard may turn or swivel to a limited extent in the stud *e*. This provides for the desired lateral play of the knife to permit it to freely follow any irregularities in the race and also enables the same knife to cut several adjacent races without any lateral shifting of the position of the fabric.

Pivoted in the forked standard *f* is the knife-arm *g*, carrying the knife *g'*. The ears of the forked standard are brought close together, with only a space between them corresponding to the thickness of the knife-arm, and the pivot-joint is formed by simply pass-

ing a bolt f^2 through transverse holes formed through the ears of the forked standard and through a hole in the knife-arm, said pivot-bolt being held in place by a nut f^3 . This manner of pivoting the knife-arm to the forked standard is much simpler and more compact than that heretofore employed and is one of the features of construction which permits an increase in the number of knives employed.

Heretofore a separate tension-belt H has been required for each knife-arm, and there had to be as many of these belts as there were knife-arms, due to the fact that the space between adjacent knife-arms was so great as to render it impracticable to make use of a belt sufficiently wide to cooperate with two adjacent knife-arms. With the present construction, by means of which adjacent knife-arms are brought much nearer together, each tension-belt H may conveniently be made wide enough to cooperate with two adjacent knife-arms, the tension-pulley being made with a correspondingly wide face. Thus while twice as many knives are employed in the present machine, thereby enabling twice as many races to be simultaneously cut, the number of tension belts and pulleys does not require to be increased, but may remain the same as before.

A further feature of invention consists in means for controlling the position of the knife and preventing it from moving independently of the knife-arm while cutting. The knife-arm g has a stud g^2 projecting at right angles therefrom. The depending arm h is provided at one end with a hub h' , which passes over the stud g^2 , and at the other end with a hub h^2 , through which the shank i of the knife-holder i' extends. Projecting at right angles from the knife-arm g is another stud, k . The head of this stud k is provided with a transverse hole tapped to receive a screw l . The stud k is located directly in front of the depending arm h and so that said stud will serve to prevent any forward movement of said arm or of the knife supported therein. The end of the screw l is notched to form a projecting toe l' , which overlies the end of the shank i of the knife-holder, and is adapted to engage a corresponding projection i^2 , formed on the end of said shank, the arrangement being such that the engagement of said toe with said projection i^2 serves to prevent any backward movement of the depending arm h . Thus said depending arm and the knife supported therein are held against either forward or backward movement, as shown in Figs. 5 and 8. With this construction if the knife should penetrate the fabric, as sometimes happens, the drag of the fabric will cause the knife to turn downward, thereby causing the shank of the knife-holder to turn in the hub h^2 of the depending arm h . This turning of the shank of the knife-holder in said hub will cause the

projection i^2 on said shank to turn out of engagement with the toe l' at the end of the screw l , thereby releasing the depending arm h from the hold of said toe and leaving said arm free to turn backward. The continued drag of the fabric will then cause said depending arm to turn on the stud g^2 , thereby enabling the knife to be turned rearward and so as to be drawn out of the fabric without producing an elongated cut therein or causing serious damage thereto. The construction above described constitutes a simple and efficient means for holding the depending arm h against movement in either direction, and thus preventing the knife from moving independently of the knife-arm as long as the knife remains in its proper position in the fabric.

A further feature of invention consists in means for holding and adjusting the tension-spring for the knife. The tension-spring m is a flat spring, the free end of which is turned downward, said downward projection being provided with a V-shaped slot adapted to receive the top edge of the knife g' . Said tension-spring thus serves not only to hold the knife against the fabric, but also to prevent the knife from moving sidewise. Secured to the end of the knife-arm g is a long screw-threaded stud n , on which is mounted the tension-spring holder m' , the hub m^2 of which is tapped to fit the screw-threaded stud n . The tension-spring holder is brought to the desired position on the stud n by turning said holder as a nut on said stud and is held in its adjusted position by the check-nut n' . The tension of the spring m may also be adjusted by turning said holder on said stud.

Heretofore the tension-spring has been permanently secured to its holder, usually by being soldered thereto, and whenever it was desired to adjust the position of the tension-spring sidewise it has been necessary to loosen the check-nut and to turn both the holder and the tension-spring secured thereto about the stud n , thereby moving the holder along said stud in one direction or the other until the tension-spring was brought to the right position. This was an awkward operation and one which required moving the knife out of the path of the projecting end of said tension-spring.

In the present construction the tension-spring m instead of being soldered or otherwise permanently united to the holder m' is detachably clamped thereto. The holder m' is split or provided with projecting ears, between which the end of the spring m passes, said spring being held in position by a screw m^3 , which passes through holes formed in said ears and in said spring and is provided with a nut m^4 . When a lateral adjustment of the spring m is required, all that is necessary to be done is simply to loosen the nut m^4 , thereby releasing the clamp on said spring and allowing the spring to turn or to be turned on

the screw m^3 as a pivot. When the spring has thus been adjusted, it may be clamped in its adjusted position by tightening the nut m^4 .

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

1. In a pile-cutting machine, the combination, with means for feeding the fabric, of a series of supports with two knife-arms supported upon each of said supports, substantially as described.
2. In a pile-cutting machine, the combination of a support, a cross-piece secured to said support, and two knife-arms secured to said cross-piece, substantially as described.
3. In a pile-cutting machine, the combination of a support provided with a standard, a cross-piece secured to said standard, and two knife-arms secured to said cross-piece, one on each side of said standard, substantially as described.
4. In a pile-cutting machine, the combination of a support provided with a standard, a cross-piece secured to said standard, said cross-piece being provided with two elongated slots, one near each end thereof, studs secured in said slots, and knife-arms supported on said studs, substantially as described.
5. In a pile-cutting machine, the combination of a support, a cross-piece secured to said support, studs secured to said cross-piece, one near each end thereof, a knife-arm supported on each of said studs, each of said knife-arms being capable of a limited swinging movement with relation to its supporting-stud, substantially as described.
6. In a pile-cutting machine, the combination of a support provided with a standard, a cross-piece secured to said standard, studs secured to said cross-piece, one on each side of said standard, a forked standard supported in each of said studs and capable of a limited turning movement therein, and a knife-arm provided in each of said forked standards, substantially as described.
7. In a pile-cutting machine, the combination, with the taking-in roll, of a support,

two knife-arms carried by said support, a tension-belt for holding the fabric in contact with said taking-in roll, said tension-belt being constructed to underlie two adjacent knife-arms, substantially as described.

8. In a pile-cutting machine, the combination, with a taking-in roll, of a series of supports for the knife-arms, each of said supports carrying two knife-arms, and a series of tension-belts for holding the fabric in contact with said taking-in roll, each of said tension-belts being constructed to underlie two adjacent knife-arms, substantially as described.

9. The combination of a knife-arm, an arm depending therefrom, said arm being provided with a socket to receive the shank of the knife-holder, a stud projecting from the knife-arm and located adjacent to said arm, a projection carried by said stud and arranged to engage the projecting end of the knife-holder shank, substantially as described.

10. The combination of a knife-arm, an arm depending therefrom, said arm being provided with a socket to receive the shank of the knife-holder, a stud projecting from the knife-arm and located adjacent to said arm, a projection carried by said stud, said projection being provided with a toe adapted to engage a projection on the knife-holder shank, substantially as described.

11. The combination of a knife-arm, a knife carried thereby, a tension-spring for said knife, and a holder for said tension-spring, said tension-spring being adjustably connected to said holder, substantially as described.

12. The combination of a knife-arm, a knife carried thereby, a tension-spring for said knife, and a holder for said tension-spring provided with a clamp in which said tension-spring is adjustably clamped, substantially as described.

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