

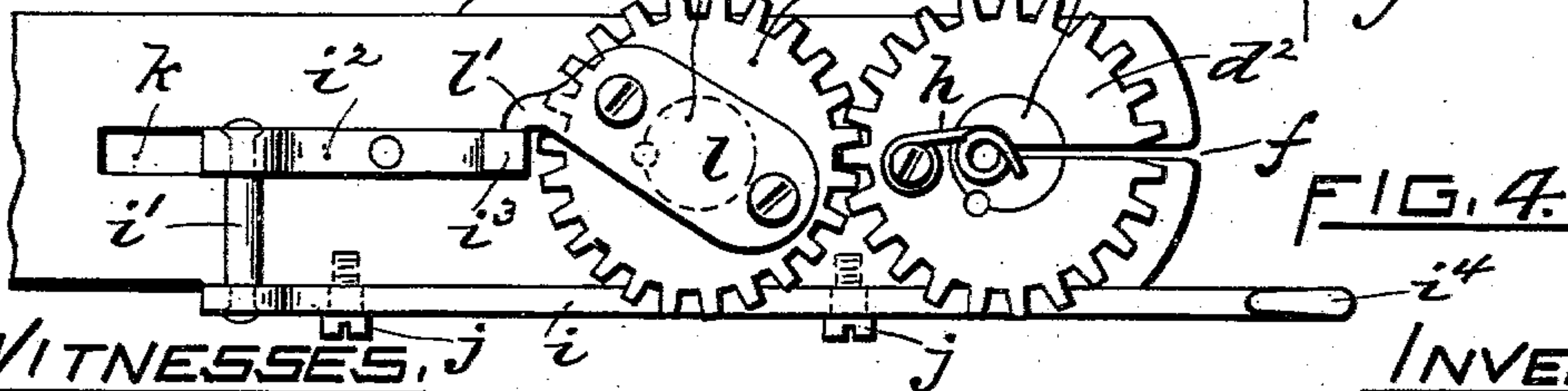
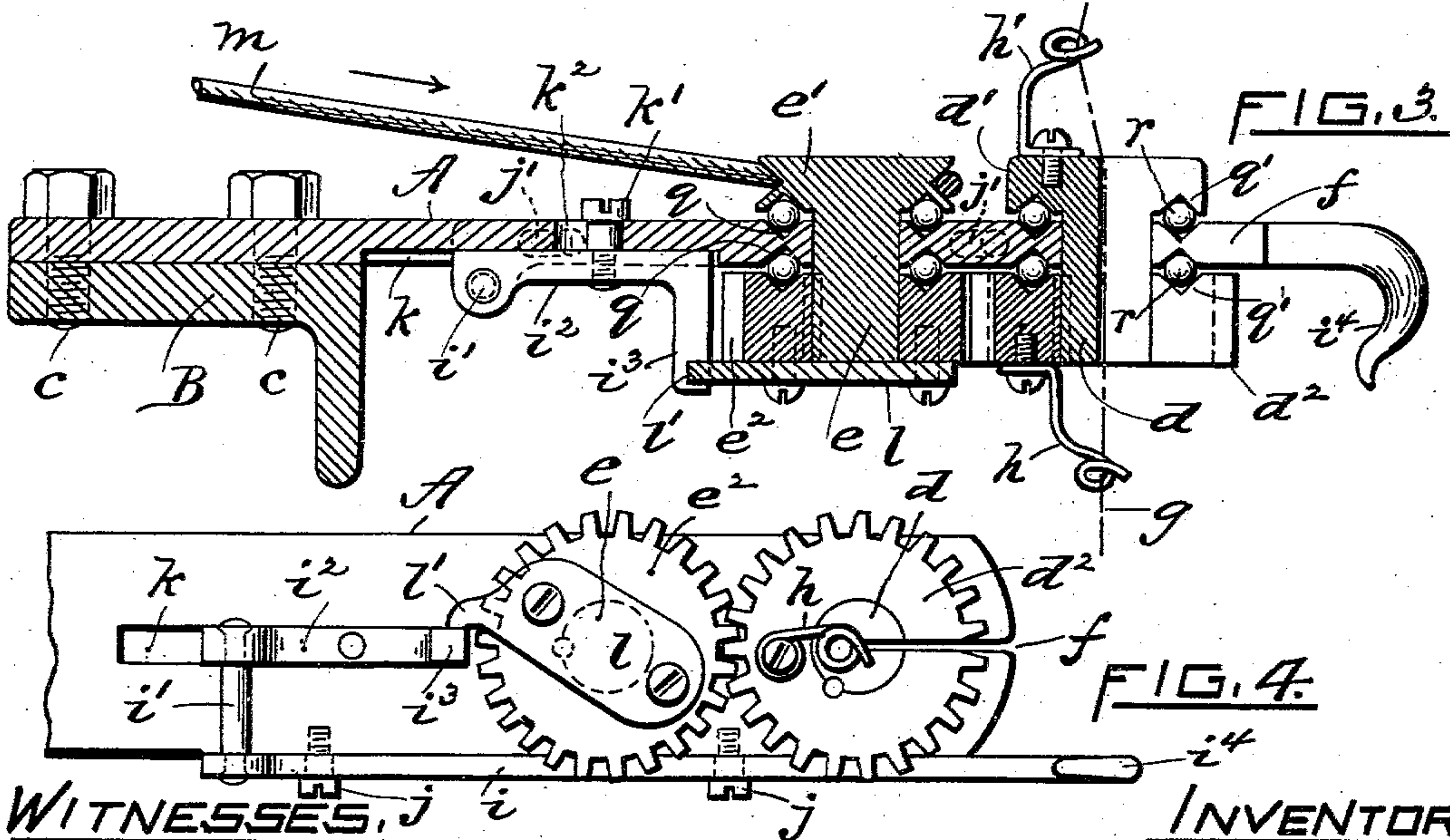
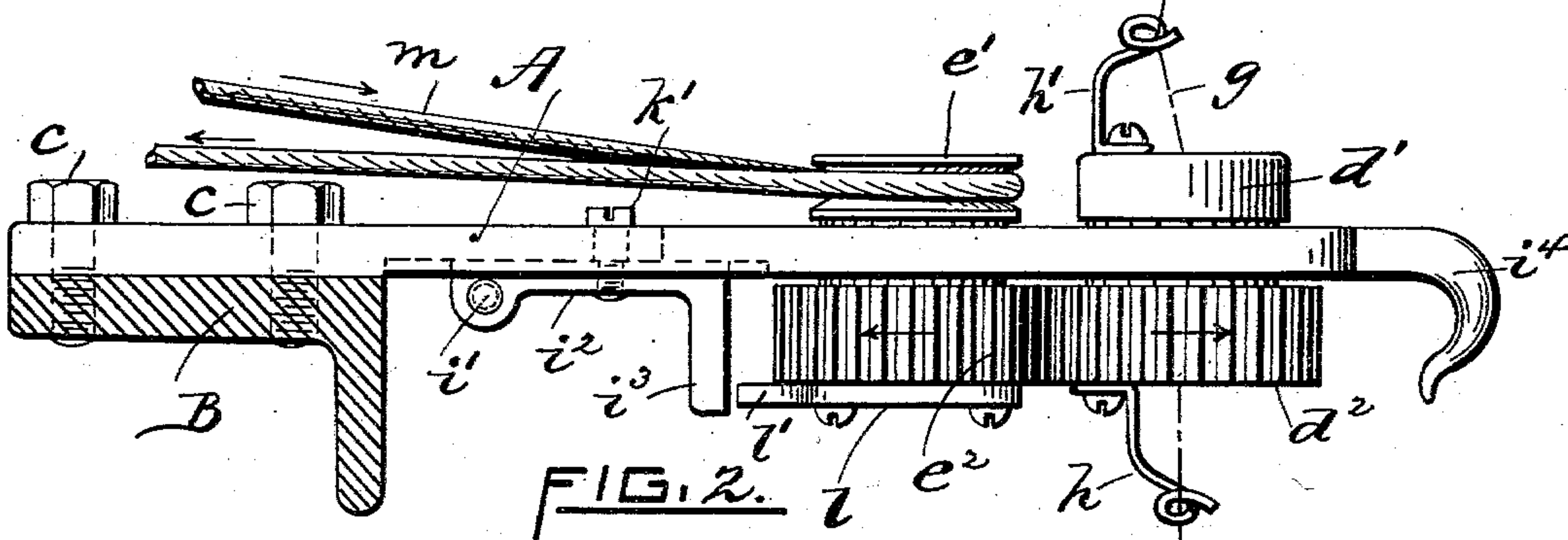
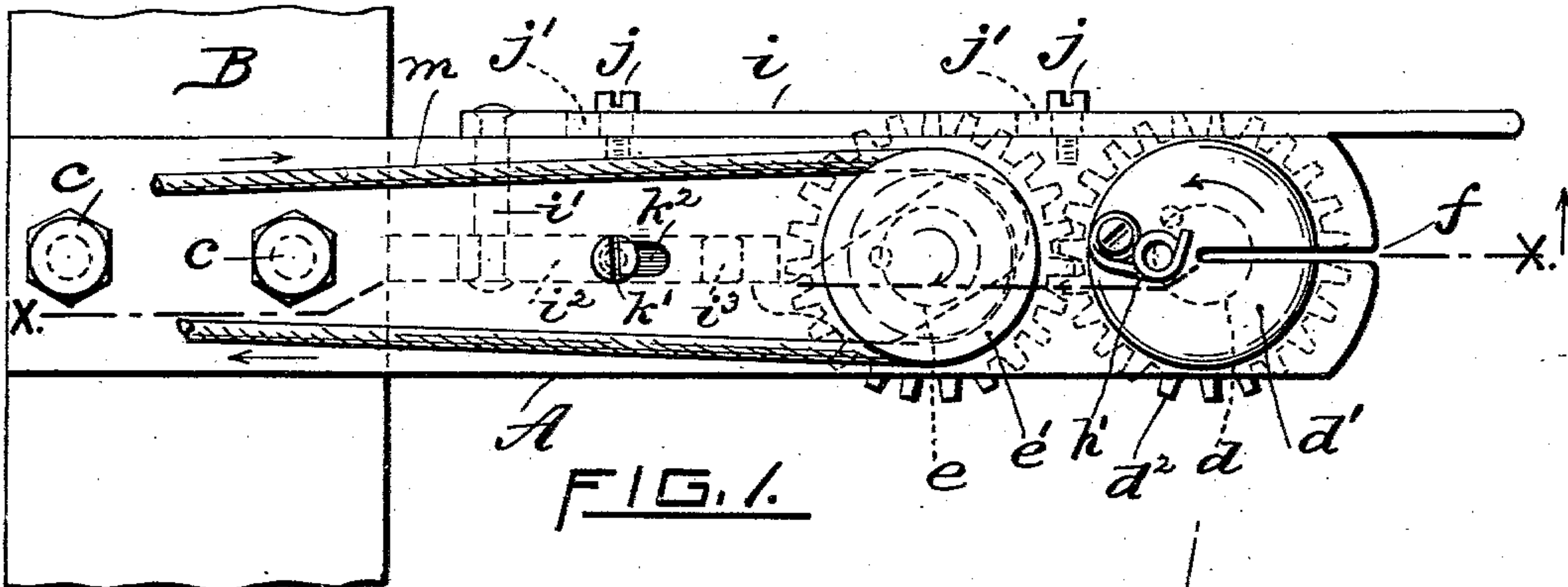
G. A. FREDENBURGH.

TWISTING HEAD FOR THREAD DRESSING MACHINES.

APPLICATION FILED APR. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES, j i

INVENTOR.

*Elmer Walker**George A. Fredenburgh.**Eugene E. Thomas Jr.**By Charles T. Hannigan,*
Attorney.

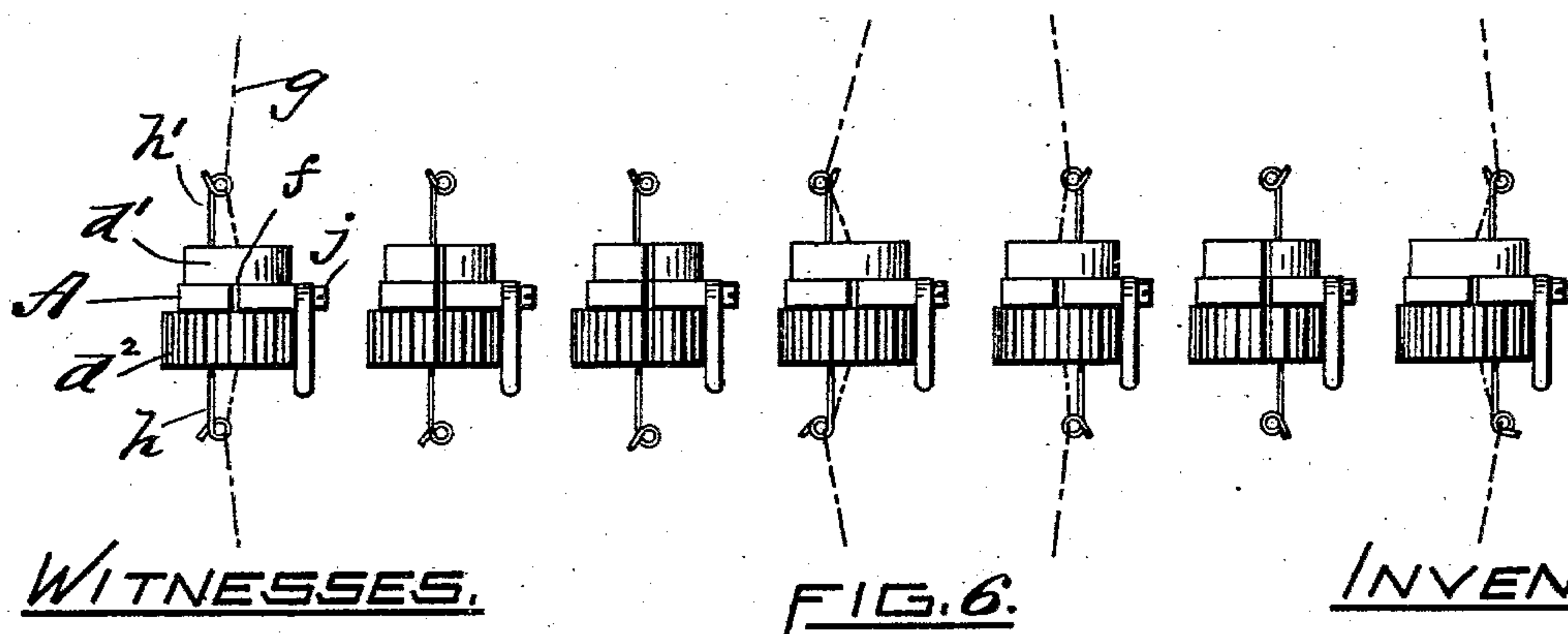
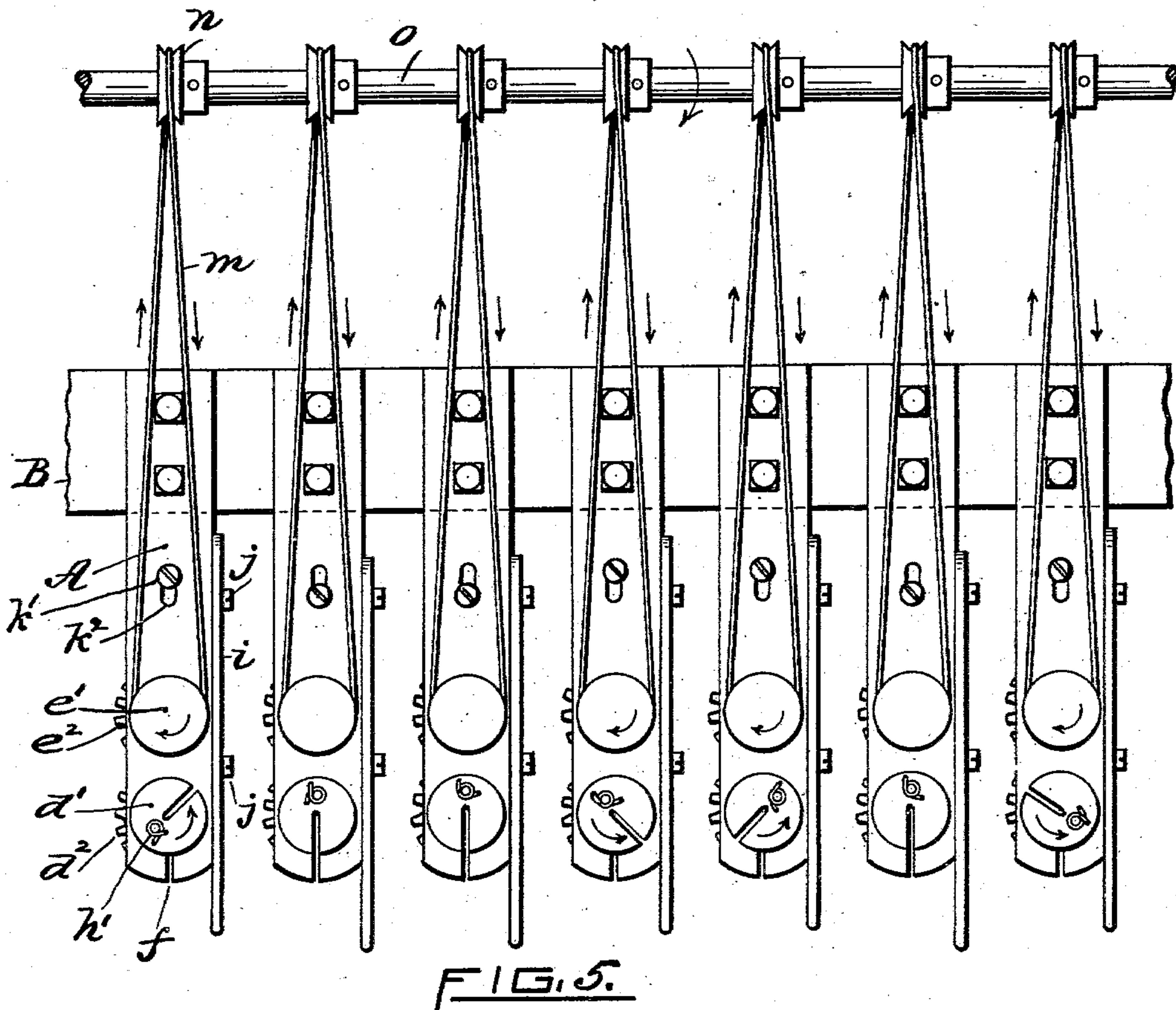
G. A. FREDENBURGH.

TWISTING HEAD FOR THREAD DRESSING MACHINES.

APPLICATION FILED APR. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES.

INVENTOR.

Everlaker
Eugene E. Thomas Jr.

George A. Fredenburgh.
By Charles T. Hannigan,
Attorney.

UNITED STATES PATENT OFFICE.

GEORGE A. FREDENBURGH, OF PAWTUCKET, RHODE ISLAND.

TWISTING-HEAD FOR THREAD-DRESSING MACHINES.

SPECIFICATION forming part of Letters Patent No. 743,707, dated November 10, 1903.

Application filed April 16, 1903. Serial No. 152,936. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. FREDENBURGH, a citizen of the United States, residing at the city of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Twisting-Heads for Thread-Dressing Machines, of which the following is a specification.

My invention relates to a twisting-head adapted for a thread-dressing machine. In a device of this character which necessitates a high speed of rotation to put the proper twist upon the thread during its feeding movement on the machine it occasionally happens that in shipping the lever to connect or disconnect the gears which actuate the twisting-head will cause a breakage in the device or a serious accident to the operator.

The object of my invention is to improve the construction of the device whereby the twisting-head may rotate at a very high speed and be operated upon to stop or start without breakage of the device or danger of accident to the operator.

A further object of my invention is to provide means for the ready insertion of a thread to the twisting-head during the operation of the machine.

With these ends in view my invention consists of the novel construction and combination of the several parts, as hereinafter fully described, and specifically set forth in the claims.

In the accompanying drawings, Figure 1 represents a top plan view of my improved twisting-head as in operation upon the frame of the machine. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a longitudinal sectional elevation view taken in line X X of Fig. 1. Fig. 4 is an inverted view of the twisting-head. Fig. 5 is a top plan view of a series of twisting-heads mounted on the machine and operated by the driving-shaft thereon, and Fig. 6 is a front end view of the series of twisting-heads.

Like letters of reference indicate like parts.

A is a bracket, one end of which is secured upon the machine-frame B by bolts *c c* and its opposite end provided with two vertical circular openings formed in alinement with each other and arranged to receive two stud-shafts *d* and *e*. The stud-shaft *d* has a cir-

cular head *d'* integral at its upper end and a spur-gear *d²* rigid upon its lower end thereof. The stud-shaft *e* has a grooved whirl *e'* integral at its upper end and a spur-gear *e²* rigid upon its lower end thereof. The gears *d²* and *e²* are always in mesh with each other.

A radial slot *f* extends from the front end of the bracket A to the axial center of the stud-shaft *d* and its circular head *d'* and the gear *d²* of said stud-shaft, as seen in Figs. 1 and 3, so that a thread *g* may be passed through the said parts to a central position. A thread-guide *h* is rigidly secured upon the gear *d²* of the stud-shaft *d* for the purpose of directing the thread to the axial center of the head *d'*. Another thread-guide *h'* is rigidly secured upon the head *d'*, and said guide is situated to direct the thread from the slot *f* in the same.

A slide-bar *i* is held in position upon one side of the bracket A by screws *j j*, which pass through elongated slots *j' j'*, formed in said bar. The inner end of the slide-bar *i* is connected by a stud *i'* with an arm *i²*, which has a downward extension *i³*, and said arm is slidable in a groove *k*, formed centrally of the bracket A, and is held in position upon the same by a screw *k'*, which enters an elongated slot *k²*, formed in the bracket. The slots *j' j'* and *k²* are to permit of a sliding movement of the lever *i* and its arm *i²* upon the bracket A.

l is a plate made fast upon the bottom of the gear *e²*, and one end of this plate projects beyond the teeth in the same, as at *l'* in Figs. 3 and 4.

The whirl *e'* has a band or cord connection *m* with a whirl *n*, made fast upon the driving-shaft *o* of the machine. (See Fig. 5.) The whirl-driving shaft *o* revolves during the running of the machine. Hence the band or cord *m* is constantly moving in frictional contact in the groove of the whirl *e'*.

When the device is in operation upon the machine, the slide-bar *i* will be at its rear position on the bracket A to the limited movement of the screws *j j* and *k'* in the slots *j' j'* and *k²* of the said bar and said bracket, and in this position of the slide-bar its extension *i³* will be free of the plate *l*, as shown in Fig. 2. The band or cord *m*, being connected with the whirl *e'*, rotates the gear *e²*, which in turn drives the gear *d²* of the head *d'* in the direc-

tion indicated by the arrows in Figs. 1 and 2. When a breakage occurs in the thread during the operation of the device, the hook end portion i^4 of the slide-bar is pulled by the hand of the operator, and which movement will carry forward the extension i^3 of said bar to the position shown in Figs. 3 and 4, and at this moment the projecting end of the revolving plate l will strike against the said extension i^3 and cause the gears to stop instantly and with the slots f in vertical alinement with each other, so that the thread may be tied and again replaced to its geometrical center in the twisting-head. The tension upon the whirl e' by the constantly-moving band or cord m is much less than the tensile strength of the plate l when it strikes against the extension i^3 of the slide-bar. Thus the twisting-head can be driven at a very high rate of speed to put the proper twist upon the thread and the device stopped instantly when the occasion requires without any breakage to the parts of the device or danger of accident to the operator.

To reduce the friction in the rotative parts of the device, circular channels $q q$ are formed in the top and bottom surfaces of the bracket and each channel concentric to the center of each stud-shaft d and e . The head d' and whirl e' and the gears d^2 and e^2 are also provided each with a circular channel, as $q' q'$, of the same size and location as the channels $q q$ in the bracket, and each of the aforesaid channels is provided with rollers $r r$.

This device forms a very simple and compact construction of parts, so that a large number of twisting-heads can be readily mounted on the machine, each independent of the other and each provided with means for the ready insertion of a thread when the occasion requires.

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

1. In a twisting-head for a thread-dressing machine, a device consisting of a bracket rigid on the machine-frame and provided with two circular openings and a slot extending radially from the center of one of said openings to the front end of said bracket; a stud-shaft rotatably mounted in an opening of said bracket and having an integral circular head at one end and a spur-gear rigid at its opposite end thereof, and said stud-shaft, its circular head and gear provided with a radial slot to their axial center; guides arranged to direct the thread to and from the slot in said stud-shaft; a second stud-shaft rotatably mounted in the other opening of said bracket and having an integral grooved whirl at one end and a spur-gear rigid at its opposite end thereof, which gear connects the gear of the first-named stud-shaft; a plate rigid upon the gear of the second-named stud-shaft and projecting beyond the teeth of said gear; a bar mounted on said bracket and having a sliding movement thereon, and adapted to engage said plate in the operation of the rota-

tive parts, and stop the movement thereof, substantially as set forth.

2. In a twisting-head for a thread-dressing machine having a shaft provided with one or more grooved whirls rigid thereon, and said shaft rotatably mounted in proper supports on the machine-frame, the combination, of a device, consisting of a fixed bracket provided with a slot; two stud-shafts rotatably mounted in said bracket, one of said stud-shafts having an integral circular head and a rigid spur-gear and each member provided with a radial slot; means to direct the thread from the said last-named stud-shaft; and the other one of said stud-shafts having an integral grooved whirl and a rigid spur-gear to mesh with the first-named gear; a plate made fast upon the second-named gear and projecting beyond the teeth of the same; a band or cord connection from a whirl of said shaft to the whirl of said stud-shaft; a bar slidably mounted on said bracket and adapted to engage said plate and stop the rotative parts whereby the slot in the said stud-shaft, its head and its gear is brought in alinement with the slot in said bracket, substantially as set forth.

3. In a twisting-head for a thread-dressing machine, the combination of a driving-shaft mounted in proper supports on the machine-frame, a device consisting of a bracket rigid upon the machine-frame and provided with a slot; a stud-shaft rotatably mounted in said bracket and having an integral circular head at one end thereof and a spur-gear rigid upon its other end and each of said parts provided with a radial slot to its axial center thereof; a guide made fast upon said gear and arranged to direct the thread to the axial center of said stud-shaft; a second guide made fast upon the circular head of said stud-shaft, and arranged to direct the thread from the slot in the same; a second stud-shaft rotatably mounted in said bracket and having an integral grooved whirl at one end thereof and a spur-gear rigid upon its other end and in mesh with the first-named gear; a flexible cord connection from the driving-shaft to the whirl of said second-named stud-shaft; a plate rigid upon the gear of said second-named stud-shaft; a sliding bar movable on said bracket and arranged to engage with the said plate, whereby the slot in the parts of said first-named stud-shaft is brought and held in alinement with the slot in said bracket, to permit of the passage of a thread to said guides; and rollers properly mounted on said bracket adapted to reduce the friction in the rotative parts of the device, substantially as shown and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. FREDENBURGH.

Witnesses:

ELMER WALKER,
EUGENE E. THOMAS, Jr.