

No. 705,220.

Patented July 22, 1902.

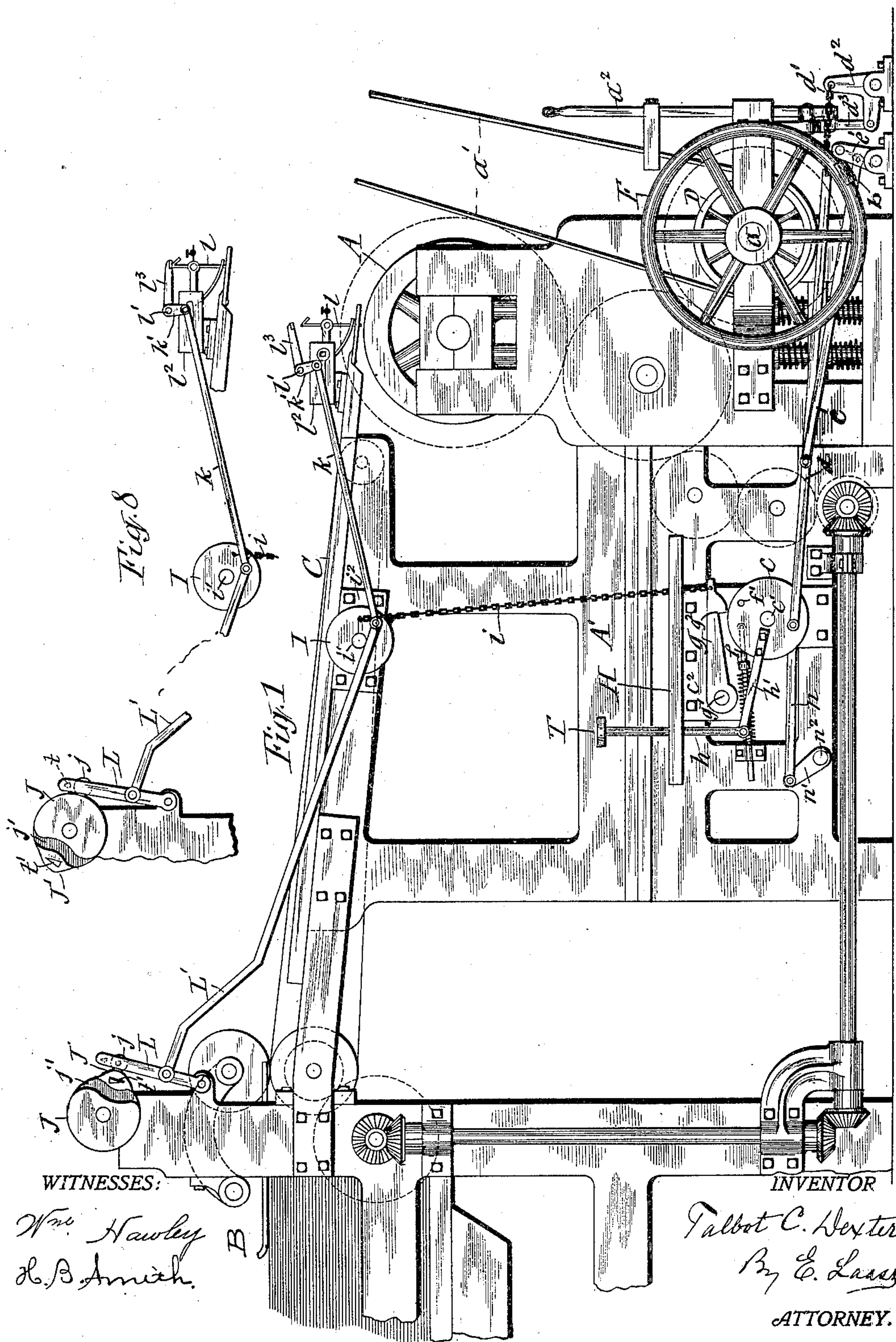
T. C. DEXTER.

AUTOMATIC PROTECTOR FOR PRINTING PRESSES, &c.

(Application filed June 14, 1901.)

(No Model.)

6 Sheets—Sheet 1.



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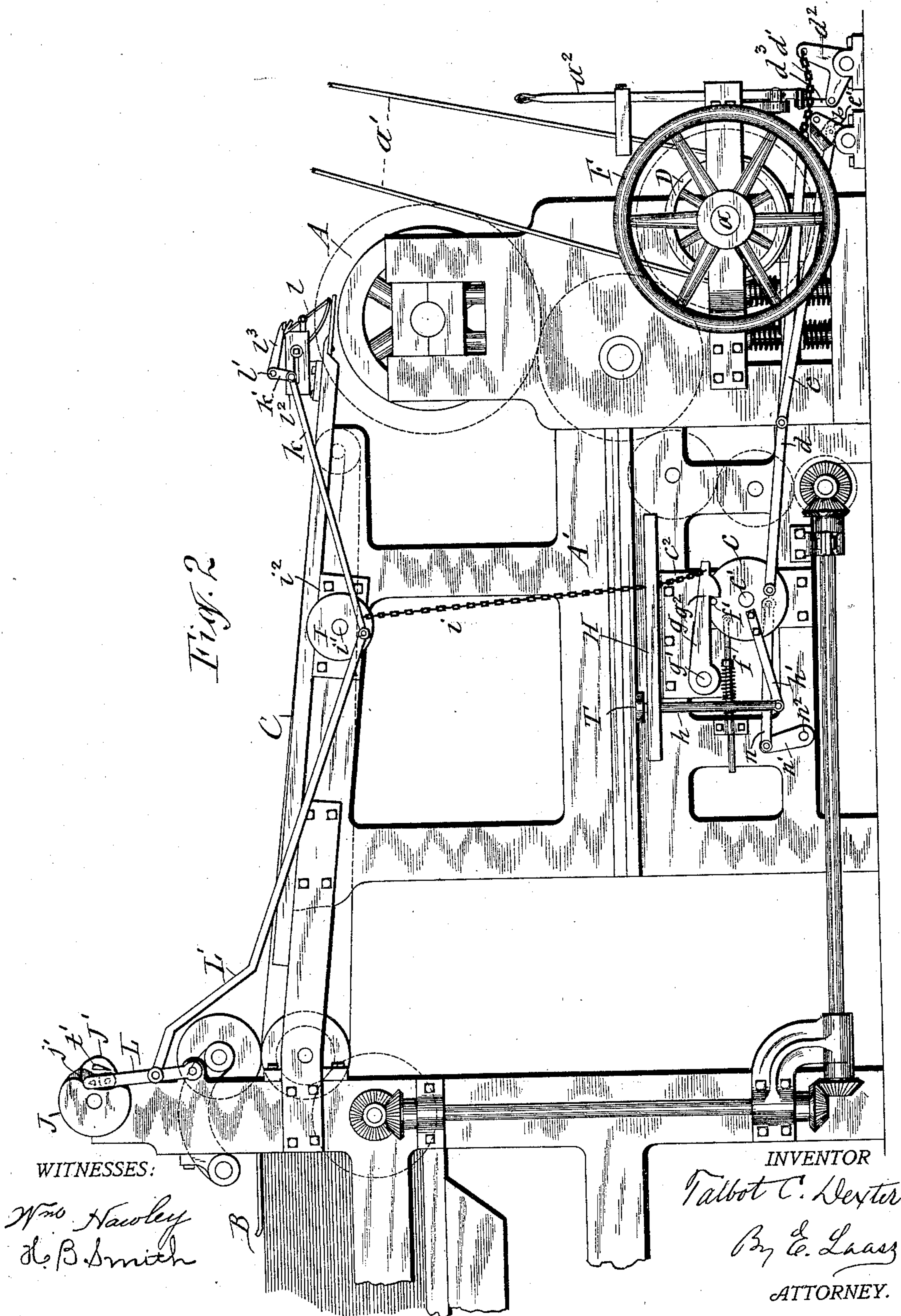
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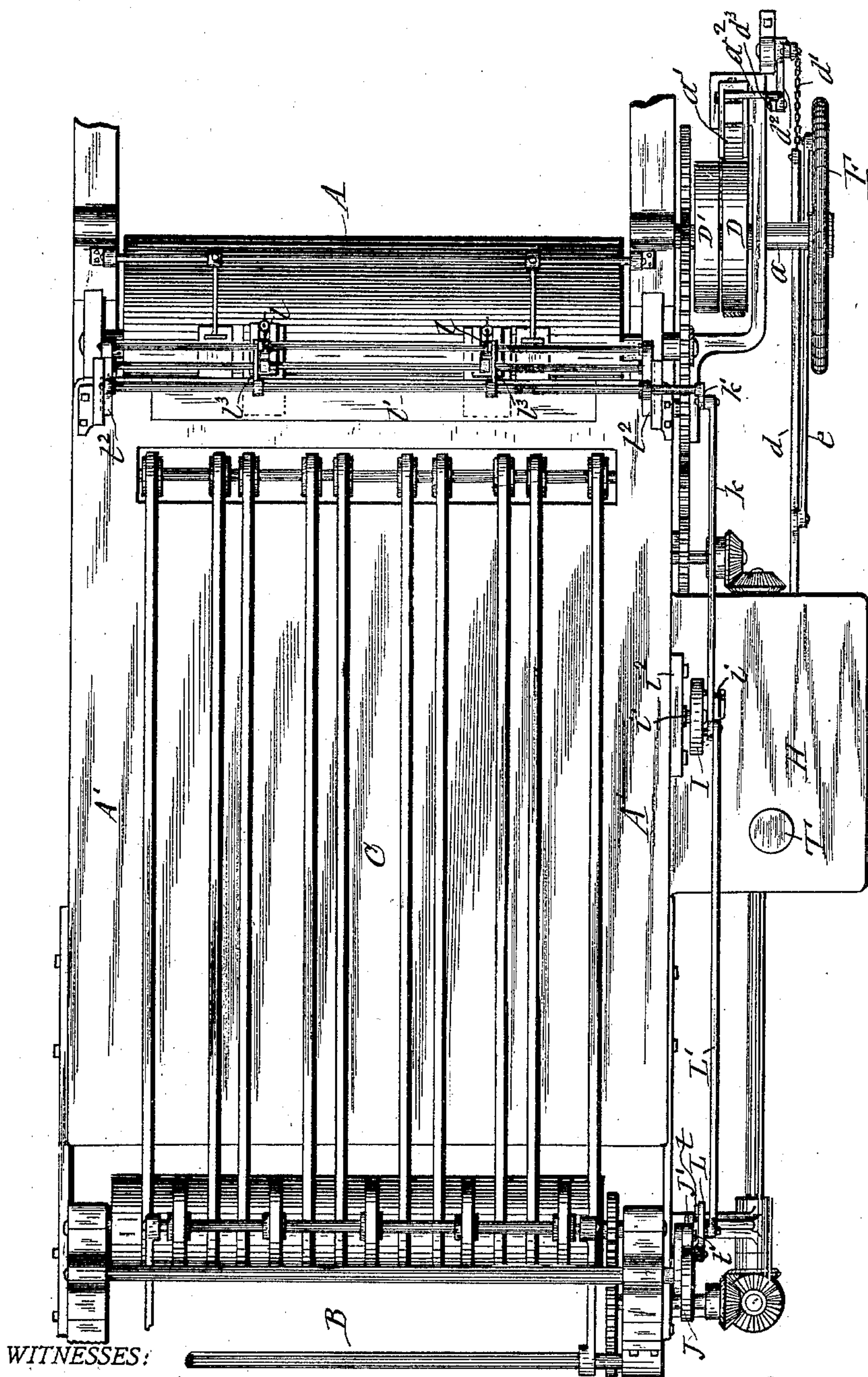


Fig. 3

WITNESSES:

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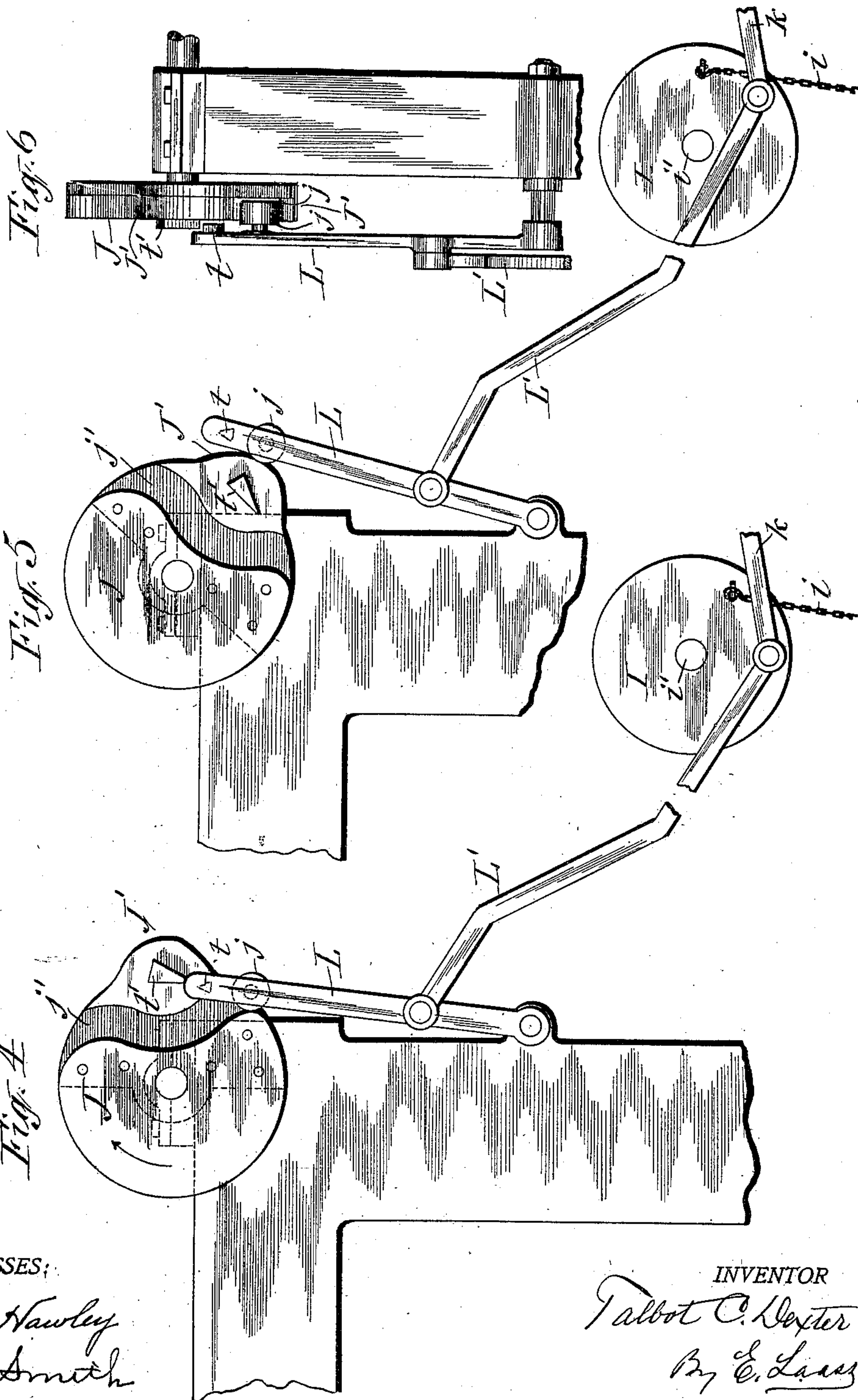
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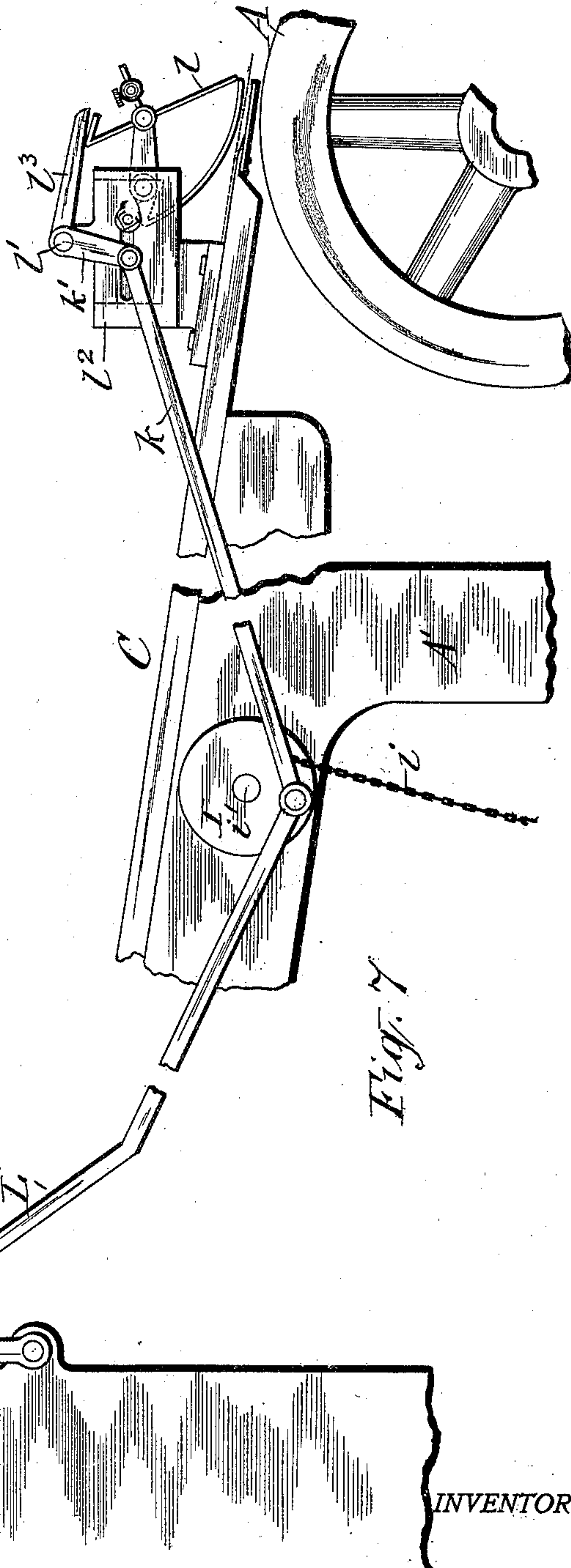
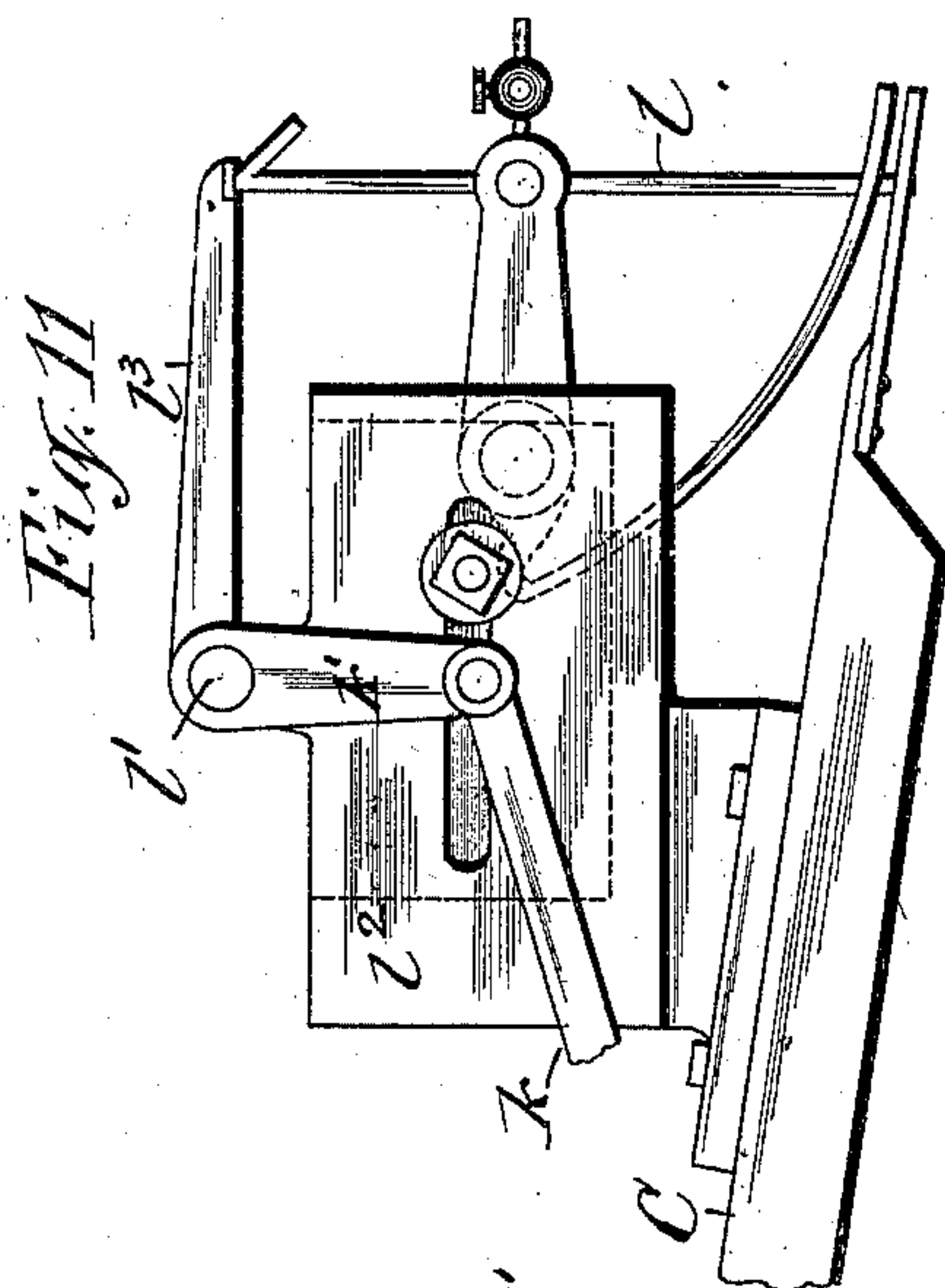
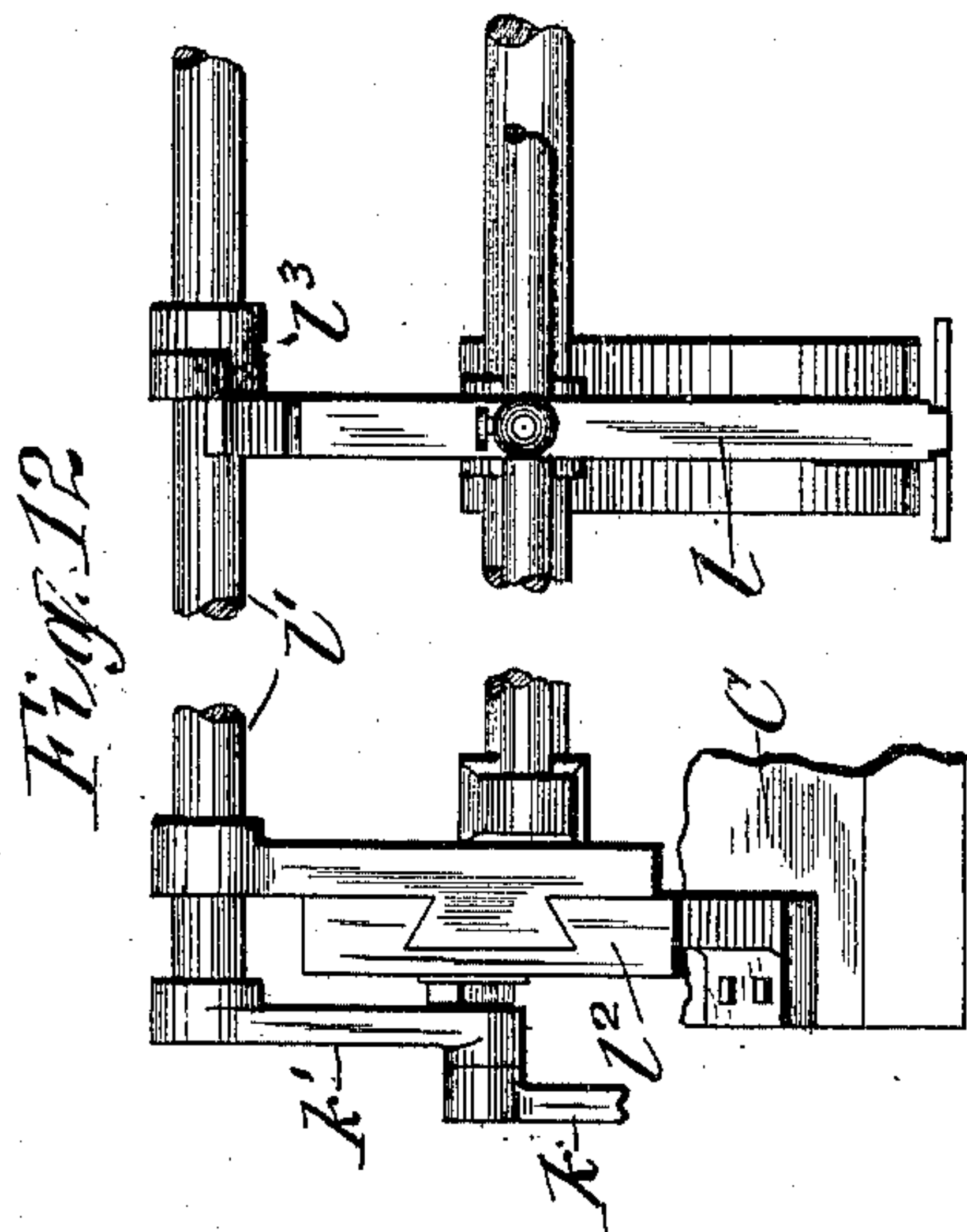
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WITNESSES:

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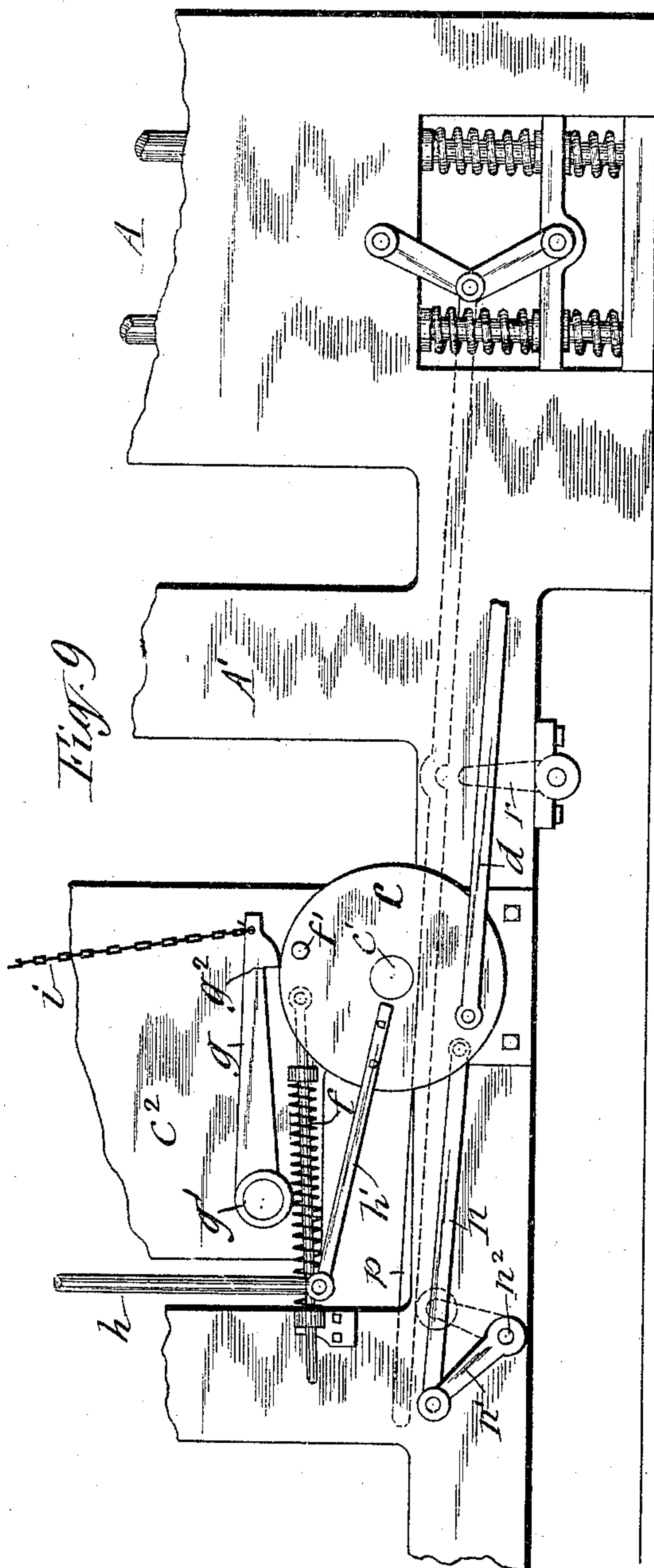
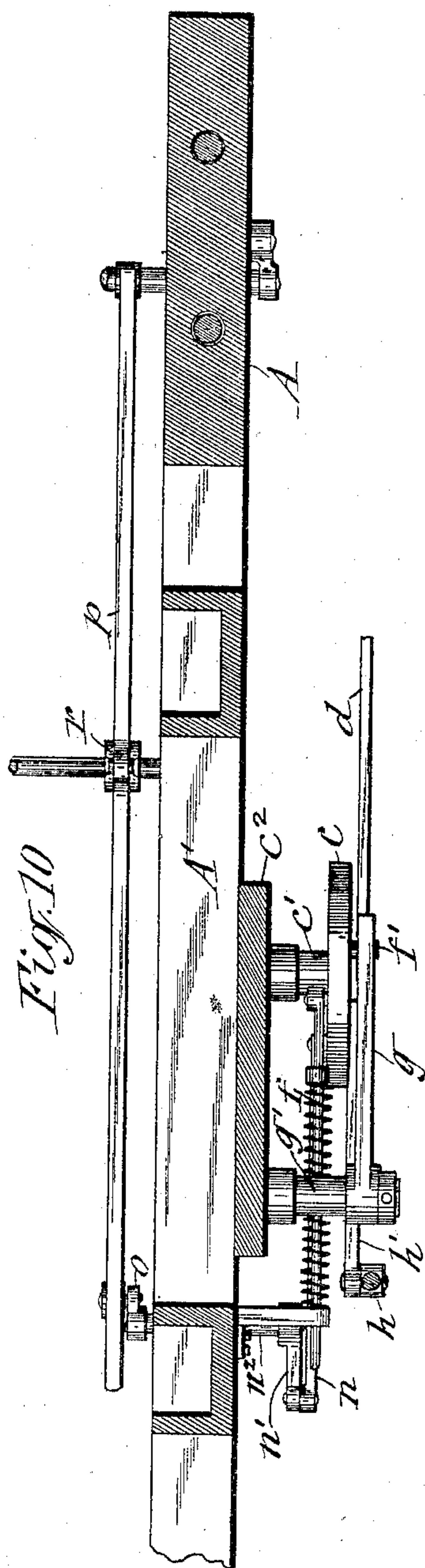
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UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER, OF PEARL RIVER, NEW YORK.

AUTOMATIC PROTECTOR FOR PRINTING-PRESSES, &c.

SPECIFICATION forming part of Letters Patent No. 705,220, dated July 22, 1902.

Application filed June 14, 1901. Serial No. 64,493. (No model.)

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, a citizen of the United States, and a resident of Pearl River, in the county of Rockland, in the State of New York, have invented new and useful Improvements in Automatic Protectors for Printing-Presses, &c., of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to automatic stop mechanisms designed to be applied to printing-presses, paper-ruling machines, and other machines operating on paper passing through such presses or machines.

My present invention is a specific improvement of the controlling devices shown in my application for patent, serial No. 61,488, filed May 21, 1901; and the invention consists in a novel construction and combination of parts which simplify the automatic controlling devices, as hereinafter described, and set forth in the claims.

The invention is clearly illustrated in the annexed drawings, in which—

Figures 1 and 2 are side elevations of a printing-press equipped with a paper-feeding machine and showing in different operative positions my improved means for controlling the automatic stop mechanism. Fig. 3 is a plan view of the same. Figs. 4 and 5 are enlarged side views of the main and supplemental cams employed for controlling the stop mechanism. Fig. 6 is an edge view of said cams. Figs. 7 and 8 are fragmentary side views illustrating two of the operative positions of the cams. Figs. 9 and 10 are respectively side and plan views of the mechanism for automatically tripping the impression-cylinder of a "two-revolution" press. Fig. 11 is an enlarged side view of the feeler and rock-shaft with their support, and Fig. 12 is a face view of the same.

Similar letters of reference indicate corresponding parts.

A represents a printing-press, which in this instance is represented to pertain to the class of two-revolution presses.

B denotes a paper-feeding machine of any suitable construction to automatically supply the paper to the printing-press.

C is the feed-board, upon which the paper

is conveyed from the feeding-machine to the printing-press.

D and D' are the usual loose and tight pulleys, mounted on the shaft *a*, from which motion is transmitted to the printing-press.

a' represents the driving-belt and *a*² the belt-shifting lever.

F represents the fly-wheel, which is fastened to the shaft *a*, and *b* represents the brake, which is applied to the fly-wheel to check its momentum when shifting the belt from the driving-pulley D' onto the loose pulley D.

The stop mechanism for automatically arresting the action of the printing-press consists of a vertical disk *c*, which is pivoted on a stud *c'*, projecting horizontally from a plate *c*², fastened to the side of the main frame A'. The disk *c* is connected by a rod *d* and chain *d'* to a bell-crank *d*², one arm of which is connected by a rod *d*³ to a horizontal extension of the lower end of the belt-shifting lever *a*², said chain forming a flexible connection required in arresting the action of the press by the transmission of motion from the disk *c* to the belt-shifting lever *a*², for the reason hereinafter explained. The rod *d* is connected by another rod *e* to a lever *e'*, carrying the brake *b*. The chain *d'* is sufficiently slack at the time the belt is on the loose pulley to allow the rod *d* to draw the brake into contact with the fly-wheel before actuating the bell-crank *d*² to shift the belt from said pulley onto the tight pulley. The disk *c* is actuated to move the rod *d*, as aforesaid, by means of a spring-actuated push-bar *f*, turning said disk in a direction to exert a draft on the said rod. To restrain the disk from turning in said direction, it has affixed to its side a projecting lug *f'*, which is engaged by a latch *g*, pivoted at one end to a stud *g'*, projecting from the plate *c*². The free end of said latch is provided with a shoulder *g*² for engaging the aforesaid lug, as shown in Fig. 2 of the drawings. The disk is turned back to its aforesaid restrained position by pressure applied to the usual treadle T, which is in convenient position to be operated by the pressman standing on the foot-board H, arranged at the side of the press in the usual manner. Said treadle has the lower end of its stem *h* connected to the free end of the arm *h'*, rigidly secured to and extending from

the disk *c*. The aforesaid engagement of the latch *g* with the disk *c* maintains the driving-belt *a'* on the tight pulley *D'* and at the same time holds the brake *b* out of contact with the fly-wheel *F*, and thus the press is allowed to operate. To automatically trip the latch from its aforesaid restraining position and allow the stop mechanism to arrest the motion of the press in case of some defect in the delivery of the paper to the press, I connect the free end of said latch by a chain or other suitable coupling *i* to the side of a vertically-disposed disk *I*, pivoted to a stud-pin *i'*, projecting from a plate *i''*, fastened to the side of the upper part of the main frame *A'*. The disk *I* receives oscillatory motion from a lever *L*, pivoted at one end to the frame of the feeding-machine *B* and connected intermediate its ends by a rod *L'* to the disk *I* at a point eccentric to the pivot of said disk. The free end of the lever *L* has pivoted to it a roller *j*, which during the proper supply of paper to the press is traversed by a primary cam *J*, supported on the frame of the feeding-machine *B* and receiving rotary motion from the actuating mechanism of the machine by any suitable means readily devised by a mechanic of ordinary skill.

At the delivery end of the feed-board *C*, I employ feelers *l*, disposed to be actuated by the paper in transit to the press in substantially the same manner as shown and described in Letters Patent No. 673,115, granted to me April 30, 1901, said feelers controlling the action of a rock-shaft *l'*, extending across the feed-board and mounted at its ends on suitable brackets *l''*, secured to the feed-board and preferably of the form shown in Figs. 7, 11, and 12 of the drawings, said rock-shaft having extending from it arms *l'''*, the free ends of which are provided with side projections which are directly over the upper ends of the feelers and come in contact with the tops of said feelers when left undisturbed from their normal position by failure of passage of paper to the press. The motion of the rock-shaft is thus limited until the feelers are tilted by paper passing under them, which action of the feelers permits the arms *l'''* to descend, and thus the motion of the rock-shaft is unrestrained. This rock-shaft receives motion from the primary cam *J* through the medium of the disk *I* and a rod *k*, pivotally connected at one end to said disk and at the opposite end to an arm *k'*, attached to the end of the rock-shaft. There is sufficient slack or lost motion in the coupling *i* to allow the disk *I* to be rocked by the primary cam *J* and to transmit motion to the rock-shaft *l'* without causing the said coupling to disturb the latch *g* from its engagement with the lug *f'* on the disk *c*, and therefore the printing-press is kept in motion. To obtain the necessary additional motion of the disk *I* to lift the latch *g* out of engagement with the lug *f'*, and thus release the stop mechanism to allow it to automatic-

ally stop the press, I employ a supplemental cam *J'*, which is attached to the primary cam *J* to move in unison therewith. The supplemental cam *J'* is disposed with a path *j'* between it and the primary cam *J* to allow the roller *j* of the lever *L* to be traversed by either of said cams. Said supplemental cam projects a greater distance from the axis of the cams than the large peripheral portion of the primary cam, and therefore imparts a greater thrust to the lever *L* when its roller *j* is traversed by the supplemental cam. Said greater thrust of the lever turns the tripper-disk *I* sufficiently to cause the coupling *i* to lift the latch *g* from its engagement with the lug *f'* on the disk *c* of the stop mechanism, which is thereby allowed to arrest the action of the press. The lever *L* is carried to a position to cause its roller *j* to be traversed by the aforesaid supplemental cam whenever the paper fails to pass to the press, said failure allowing the feelers *l* to remain in their normal position, which causes the arms *l'''* of the rock-shaft *l'* to come in contact with the tops of the feelers, and thereby arrest the movement of said rock-shaft in time to hold the lever *L* in a position to prevent its roller from following the contour of the primary cam and cause said roller to be traversed by the supplemental cam *J'*, which exerts a further thrust on the lever *L*, as hereinbefore described.

In order to obviate the liability of the front end of the supplemental cam striking the roller *j* squarely at its center and to insure the mounting of said roller onto the supplemental cam, I provide a suitable guard for more positively guiding the roller *j* onto the supplemental cam. I prefer to form this guard of two wedges *t* and *t'*, one of which is attached to an extension of the lever *L*, and the other is attached to the adjacent side of the supplemental cam *J'*. Said wedges point toward each other and are so arranged in relation to each other and to the cams that whenever the lever *L* is restrained by the arrest of the motion of the rock-shaft *l'* the wedge *t* will slide onto the outer edge of the wedge *t'* and shift the lever *L* to a position to carry its roller *j* onto the supplemental cam.

When the described automatic stop mechanism is applied to a two-revolution press, I attach to the stop-disk *c* a rod *n*, which is connected to an arm *n'*, fastened to a horizontal shaft *n''*, which is mounted in suitable bearings on the base of the main frame *A'* and has fixed to it another arm *o*, having pivoted to its free end a roller *o'*, by which it bears on the under side of the rod *p*, which intermittently moves the impression-cylinder to its operative position. In the release of the stop-disk *c* from the latch *g* the rod *n* is pushed by said disk in a direction which causes the arm *n'* to turn the shaft *n''* and lift the rod *p* by means of the arm *o*. The lifting of said rod from its actuating rock-arm *r*

causes the impression-cylinder to be tripped and prevented from descending to operative position.

What I claim as my invention is—

5 1. The combination with a printing-press, mechanism supplying the paper to said press, and stop mechanism actuated to automatically arrest the action of the press, of a vertically-disposed pivoted disk, variable mechanism imparting different degrees of oscillations to said disk, a feeler actuated by the paper in transit to the press and controlling said variable mechanism, and a latch restraining the aforesaid stop mechanism and thrown
10 from its restraining position by the increased motion of the aforesaid disk.

2. The combination with a machine designed to operate on paper passing through it, and stop mechanism actuated to automatically arrest the action of said machine, of a latch restraining the stop mechanism, a primary cam, a lever oscillated by said cam, a rock-shaft receiving motion from said lever, a feeler disposed to be actuated by the paper in transit to the aforesaid machine and controlling said rock-shaft to restrain the movement of the aforesaid lever to the primary cam, and a supplemental cam actuating the restrained lever to trip the latch from its operative position as set forth.
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3. The combination with a machine designed to operate on paper passing through it, and stop mechanism actuated to automatically arrest the action of said machine, of a latch restraining the stop mechanism, a primary cam and a supplemental cam disposed with a path between them, a lever pivoted in position to be actuated by one of said cams at a time, and receive different degrees of thrust therefrom, a pivoted disk oscillated by said lever, a coupling between said disk and latch to trip said latch from operative position by the greater thrust of the lever, a rock-shaft moving in unison with said disk, a
35 40 45 feeler disposed to be actuated by the paper in transit to the aforesaid machine and controlling the operative position of the aforesaid lever through the medium of the rock-shaft and disk as set forth.

50 4. The combination with a printing-press and its actuating mechanism, a vertically-disposed stop-disk connected to said actuating

mechanism, a spring-pushed rod turning said disk to arrest the actuating mechanism, a lug projecting from said disk, a latch adapted to engage said lug, a lever for turning the disk in a direction to release the actuating mechanism and to a position to allow the latch to engage the lug, a pivoted tripper-disk coupled to said latch, a primary cam and a supplemental cam disposed with a path between them, a lever pivoted in position to be actuated by said cams one at a time and receive different degrees of thrusts therefrom, a rod transmitting motion from said lever to the tripper-disk, feelers disposed to be actuated by the paper in transit to the printing-press, a rock-shaft controlled by said feelers, and a rod transmitting motion from the tripper-disk to said rock-shaft as set forth.
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5. The combination with a printing-press, its actuating mechanism, spring-actuated stop-disk connected to said mechanism, a latch restraining said stop-disk, feelers disposed to be actuated by the paper in transit to the press, a rock-shaft controlled by said feelers, a primary cam and a supplemental cam projecting different distances from their axis and disposed with a path between them, a lever having pivoted to it a roller adapted to pass through said path and to be traversed by either of the two cams, means for controlling said lever by the aforesaid rock-shaft, and a guard guiding the roller of the lever from the primary cam to the supplemental cam as set forth.
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6. The combination of a primary cam and a supplemental cam revolving in unison about the same axis and disposed with a path between them, a lever having pivoted to it a roller adapted to pass through said path and to be traversed by either of the two cams, a wedge fastened to the side of the supplemental cam, a wedge attached to the lever beyond the roller thereof and pointing toward the wedge on the cam to guide the said roller from the primary cam to the supplemental cam, and mechanism controlling the position of the lever in relation to the cams as set forth.
90 95

TALBOT C. DEXTER. [L. S.]

Witnesses:

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EDWIN LINDQUIST.