

No. 702,459.

Patented June 17, 1902.

F. McCLINTOCK & F. HOLDSWORTH.

TYPE JUSTIFYING MACHINE.

(Application filed June 29, 1901.)

(No Model.)

2 Sheets—Sheet 1.

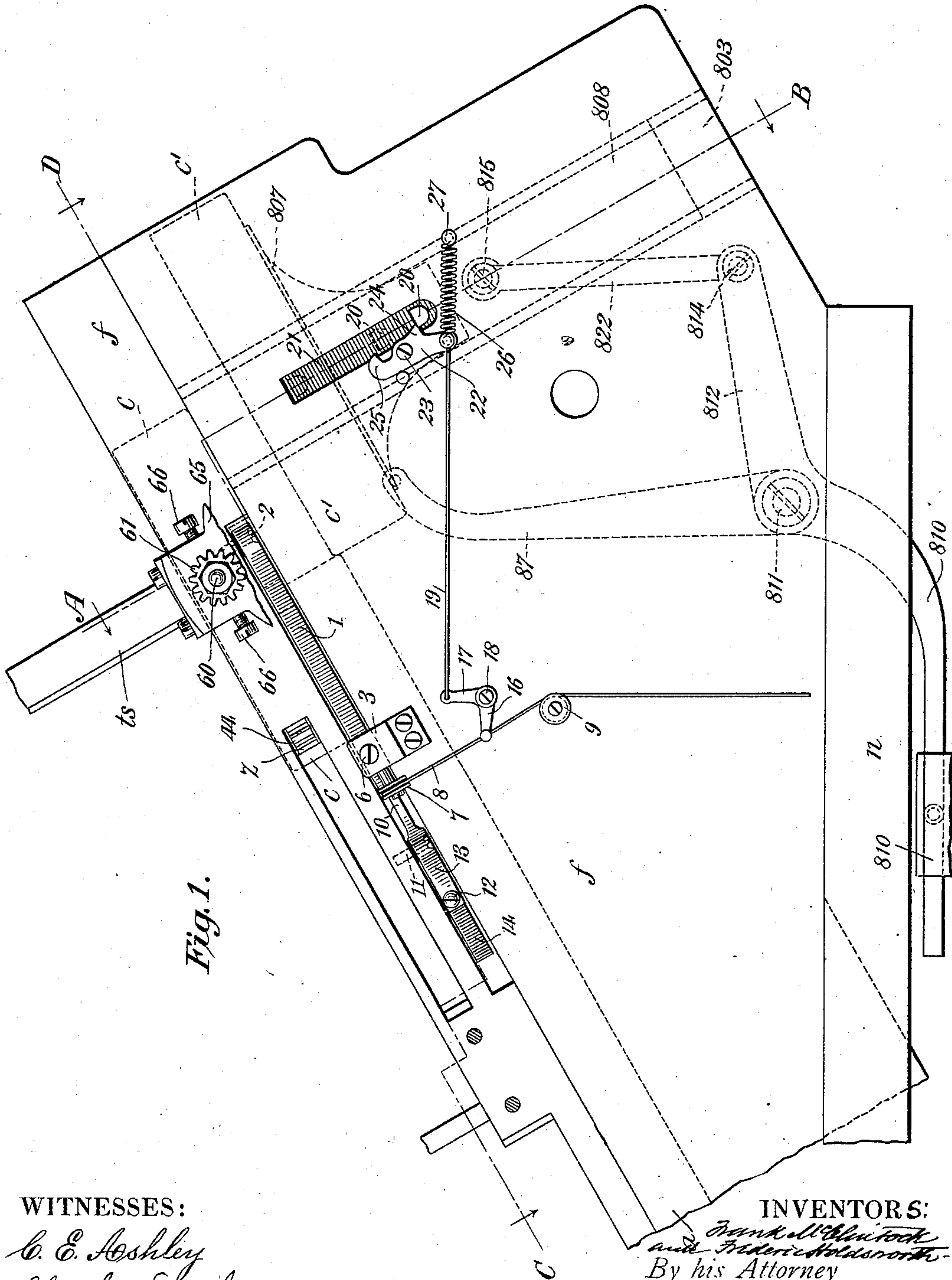


Fig. 1.

WITNESSES:

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By his Attorney
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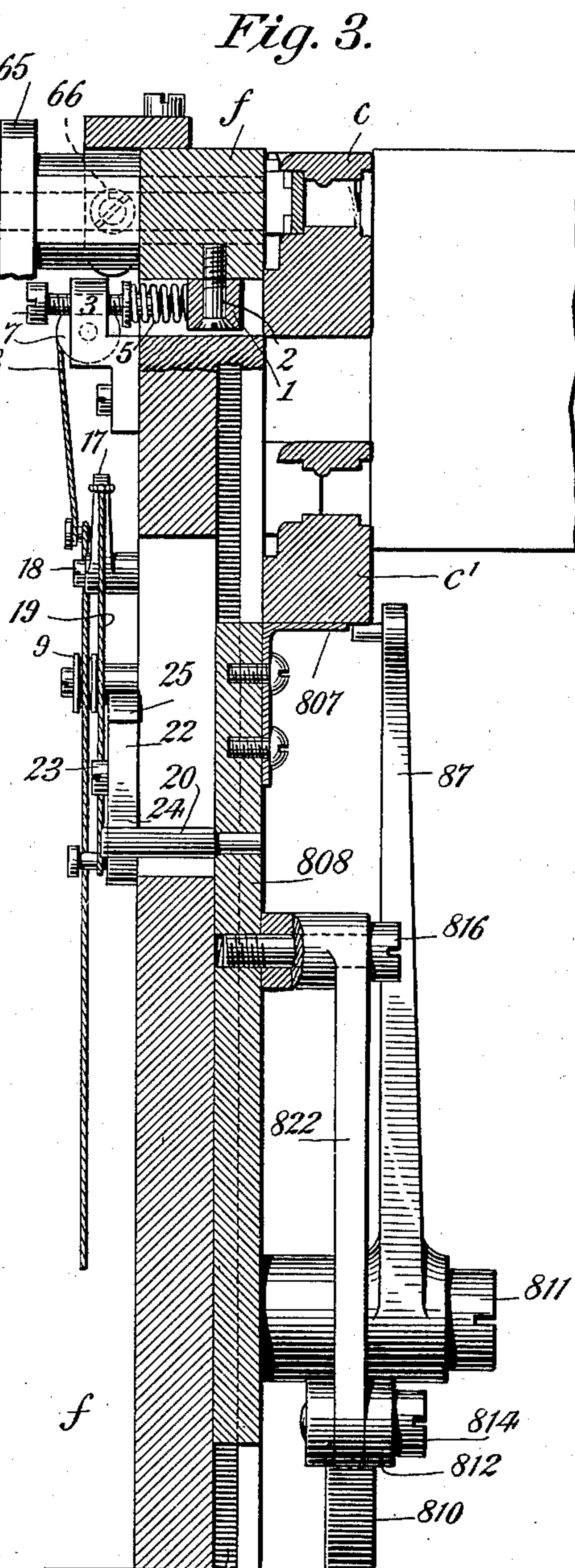
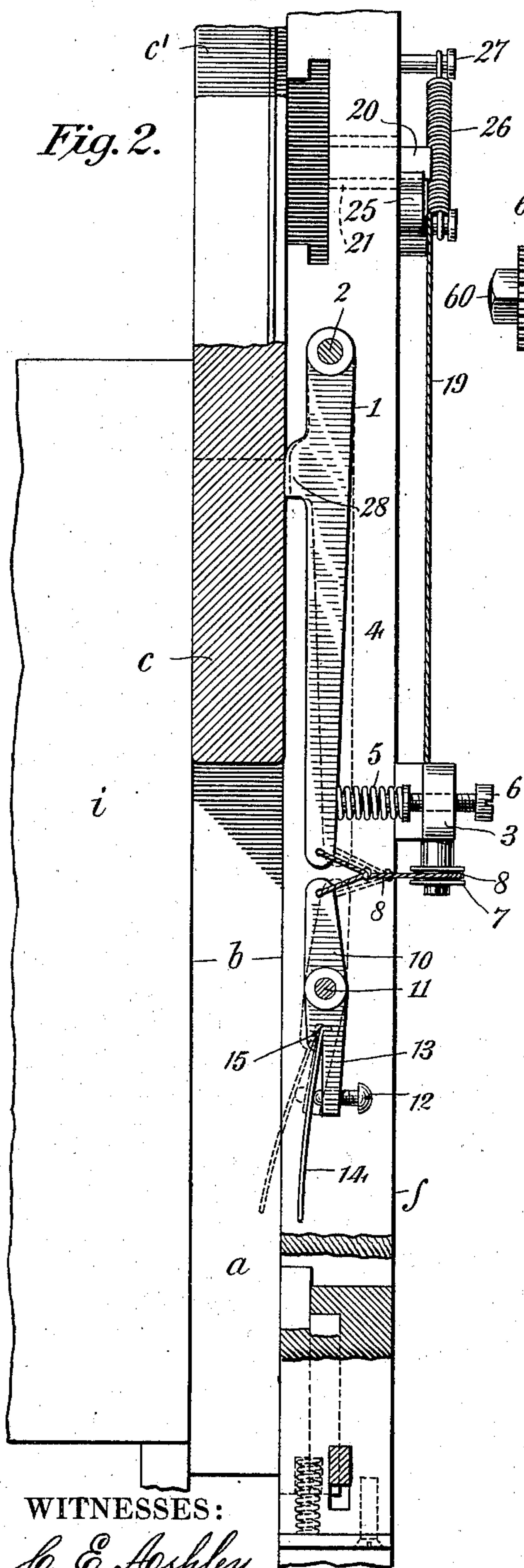
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(Application filed June 29, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK McCLINTOCK, OF MOUNT VERNON, AND FREDERIC HOLDSWORTH, OF NEW YORK, N. Y., ASSIGNORS, BY MESNE ASSIGNMENTS, TO EDWIN C. HOYT AND FELIX ROSEN, OF NEW YORK, N. Y.

TYPE-JUSTIFYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,459, dated June 17, 1902.

Application filed June 29, 1901. Serial No. 66,514. (No model.)

To all whom it may concern:

Be it known that we, FRANK McCLINTOCK, a resident of Mount Vernon, Westchester county, and FREDERIC HOLDSWORTH, a resident of the city and county of New York, State of New York, citizens of the United States, have invented certain new and useful Improvements in Type-Justifying Machines, of which the following is a specification.

Our invention relates to that class of machines for justifying type wherein the types and spacing devices are assembled in line-holders which travel in a suitable inclined track or way from the place of assemblage to the justifying mechanism, thence to a galley, into which the line of type is removed and the line-holder transferred to a lower return track or way, along which it is moved upward and returned to the place of assemblage. In machines of this class as heretofore constructed suitable actuating mechanism of more or less complicated construction has been used to cause the required and timely movement of the filled line-holder down the inclined track or way during the operation of justification. We have found by experiment that the inclination of the track in machines of this class is such that the force of gravitation alone is sufficient to move the line-holder down to the justifying mechanism and also to carry it forward step by step as the wedges are successively removed and replaced with space-blanks during the operation of justification.

The objects of our improvements are to provide suitable and simple mechanism for regulating and controlling the movement of the line-holders, so that the force of gravitation may be allowed to act at the proper time and in the proper manner and without too greatly accelerated speed and momentum.

The improvements shown are especially adapted to the automatic machine for justifying type shown and described in a certain application for Letters Patent filed by Frank McClintock in the United States Patent Office on the 20th day of July, 1901, under Serial No. 24,291.

The invention is shown in its preferred construction in the accompanying two sheets of drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a longitudinal sectional view along the line C D of Fig. 1, and Fig. 3 is a vertical sectional view along the line A B of Fig. 1.

Similar reference letters and figures refer to similar parts in each of the views.

The following elements found in this machine are common to type-justifying machines of the class referred to and have the same reference characters as are used in the drawings in the Letters Patent above referred to.

n is the main table of the machine, on which the side plate *f* is secured.

a is the justifier bed-plate.

t s represent the inclined type-chute down which the types slide by gravity to the line-holder *c*, which has a suitable type-recess of the length and width to contain one line of type and the necessary spacing devices.

b is the inclined track or way along which the filled line-holders move to the justifying mechanism.

Since the assembling of the types and spacing devices in the line-holders and the subsequent automatic justification and spacing of the line and its removal to a galley form no part of the present invention, the mechanism whereby these operations are effected is not shown in the drawings, which are thus limited to the parts necessarily cooperating to make an operative machine embodying our improvements.

In the machine two line-holders *c* and *c'* are used which are alternately filled with types by the operator and adapted to move down the inclined track or way *b*, with the type-recess directly under the type-chute *t s*. The line-holder is caused to advance along this track or way as the types are assembled therein by a rapidly-rotating type-cam, as shown and described in the patent above referred to. A friction-brake is provided to prevent the too-rapid advancement of the line-holder, which consists of a horizontal lever 1, pivoted at the point 2 in the longitudinal slot 4 in the

plate *f*, provided with the projecting shoulder 28, which impinges against the inner face of the line-holder *c*, being normally held in contact therewith by a spring 5. The tension of this spring may be regulated by means of an adjusting-screw 6, moving in a bearing 3 on the frame *f* of the machine. A cord or wire 8 passes over the grooved pulleys 8 and 9 and is connected to a suitable key-lever (not shown in the drawings) in such a manner that a depression of the key-lever will draw the lever 1 to the right, as shown in Fig. 2 by the broken lines. In this position the projecting shoulder 28 will no longer remain in frictional contact with the line-holder *c*, which will then be free to move down the track or way *b* by the action of gravity. In order that the line-holder when thus released may not move down to the justifying mechanism with too great momentum, it is necessary to provide some means which while adapted to retard or cushion its first downward movement from the place of assemblage of type will not interfere with or retard its subsequent intermittent movement during the operation of removing the space-bars and replacing them with space-blanks. The device preferred consists of a pivoted lever 10, having a flat spring 14 attached thereto, which lever is normally in the position shown by the full lines in Fig. 2. The rear end of the lever 10 is connected to the cord or wire 8, which, as before described, is connected to the key-lever above referred to, and the depression of this key-lever, termed the "line-key," by the operator upon the completion of the line releases the line-holder, as before described, and at the same time throws the end of the spring 14 out into the track or way *b*, as shown by the broken lines, where the advancing line-holder strikes it, and is thereby brought partially or wholly to rest, depending on the strength of the spring 15. A set-screw 12, passing through an opening in the lever 10, serves to adjust the spring 14 so that the momentum of the line-holder may be reduced to the exact extent required and the line-holder allowed only sufficient momentum to actuate the trip-lever, which serves to throw the justifying mechanism into gear. It is frequently the case that the second line-holder *c'* is returned to the line-holder elevator 808 before the operator has finished the composition of his line, and in this event the elevator as heretofore constructed would immediately raise up the line-holder *c'* until it came into contact with the bottom of the upper line-holder *c*, thereby preventing by friction the movement of the filled line-holder down its track, as above described, when the friction-lever is withdrawn. We therefore provide an escapement-lever 22 or other equivalent device whereby the line-holder elevator when depressed by the movement of the line-holder up the lower track or way may be prevented from rising again until the operator has depressed and released the line-key which actuates the friction-lever 1. In the construction

shown a stud 20 is secured to the sliding elevator-plate 808 and extends out through an opening 21 in the side plate *f*. The escapement-lever 22 is pivoted at the point 23 to the plate *f* and has two projecting teeth 24 and 25, the lower one normally projecting a sufficient distance forward to engage the projecting end of the stud 20 when at or near its lower position, as shown in Figs. 1 and 3, thereby preventing the weight 810 and levers 812 and 817 from causing the elevator to rise immediately after the line-holder *c'* has been carried onto the elevator and clear of the plate *a* by the mechanism shown and described in the patent referred to. A spring 26, attached to a pin 27 at one end on the plate *f* and to the lever at the other, serves to retain the escapement-lever 22 in its normal position, while its lower end is connected by the cord or wire, bell-crank 16, and cord 19 to the same line-key which actuates the friction-lever 1. It will be evident that whenever the line-key is depressed the lower tooth 24 of the escapement-lever 22 will be withdrawn outward from engagement with the stud 24, and at the same time the upper tooth 25 will be thrown inward, thereby engaging the stud 24 when it has been moved up to the position 29, (shown by the broken lines in Fig. 1,) in which position it will be retained so long as the line-key is held down by the operator. While held in this position the upper surface of the line-holder *c'*, as will be evident from an inspection of the drawings, will be prevented from impinging on the bottom of the upper line-holder. Upon the release of the line-key after the upper line-holder has moved down its track beyond the projecting shoulder 28 of the lever 1 the spring 26 will return the escapement-lever 22 to its normal position, thereby releasing the stud 24 from its engagement with the tooth 25 and allowing the elevator 808 and the line-holder *c'* to be at once raised to the upper track directly under the type-chute *t*s, ready for the operator to begin the composition of another line of type. Upon the descent of the elevator 808 the stud 20 will pass over the beveled face of the escapement-lever 22, and the force of the spring 26 after the tooth 24 is passed will hold the mechanism in the position shown in Fig. 1 until again released by the finger of the operator on the key.

We claim as our invention—

1. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-holder; and devices substantially as described for retracting the lever and releasing the line-holder at the will of the operator.

2. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track;

a lever pivoted in a suitable groove in the side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-
 5 holder; devices substantially as described, for regulating and controlling the tension of the spring; and a suitable key-lever for retracting the lever and releasing the line-
 10 holder at the will of the operator.

10 3. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the
 15 side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-holder; a second lever pivoted in the groove, provided with a spring at one end arranged
 20 to engage with and retard the movement of the line-holder as it descends the track; and means substantially as described for retracting the lever and releasing the line-holder at the will of the operator and at the same instant
 25 actuating the lower lever and causing the spring to assume a position where it engages with and retards the line-holder as it descends.

4. The combination of a side plate; a line-holder elevator moving thereon, having a pro-
 30 jection arranged to extend outwardly through an opening in the side plate; an escapement-lever attached to the side plate, arranged to engage therewith; and devices substantially as described, for actuating the escapement-
 35 lever.

5. The combination of a side plate; an inclined track or way upon which the line-holder travels; a line-holder traveling on said track; a lever pivoted in a suitable groove in the
 40 side plate so as to engage with and hold the line-holder; a spring whereby the lever is normally held in engagement with the line-

holder, a line-holder elevator having a projection arranged to extend outwardly through an opening in the side plate of the machine; 45
 an escapement-lever attached to the side plate, arranged to engage therewith and devices substantially as described for retracting the lever and releasing the line-holder at the will of the operator, and for actuating 50
 the escapement-lever at the appropriate moment.

6. The combination of a side plate; an inclined track or way upon which the line-holder travels; a lever pivoted in a suitable groove 55
 in the side plate so as to engage with and hold the line-holder, a spring whereby the lever is normally held in engagement with the line-holder; a second lever pivoted in the groove; provided with a spring at one end arranged 60
 to engage with and retard the movement of the line-holder as it descends the track, a line-holder elevator, having a projection arranged to extend outwardly through an opening in the side plate of the machine; an escape- 65
 ment-lever attached to the side plate, arranged to engage therewith; and means substantially as described for retracting the lever and releasing the line-holder at the will of the operator and at the same instant actuating the 70
 lower lever and causing the spring to assume a position where it engages with and retards the line-holder as it descends, and for actuating the escapement-lever at the appropriate moment. 75

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 28th day of June, 1901.

FRANK McCLINTOCK.

FREDERIC HOLDSWORTH.

Witnesses:

CHARLES ENGEL,

THOMAS HOLDEN, Jr.