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T. C. DAMBORG, Dec'd.

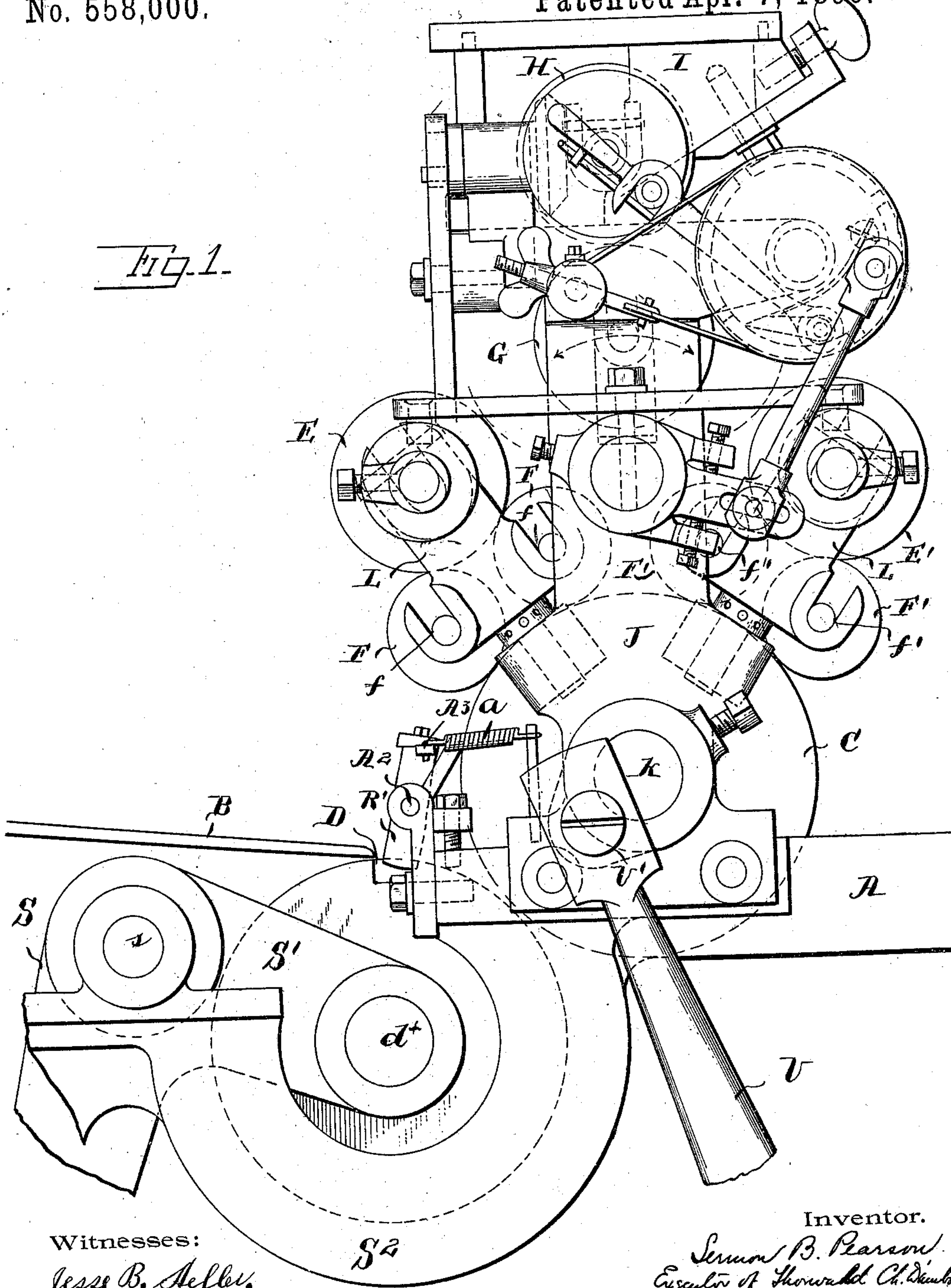
S. B. PEARSON, Executor.

PRINTING PRESS.

No. 558,000.

Patented Apr. 7, 1896.

Fig. 1.



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By

[Signature]

Attorney.

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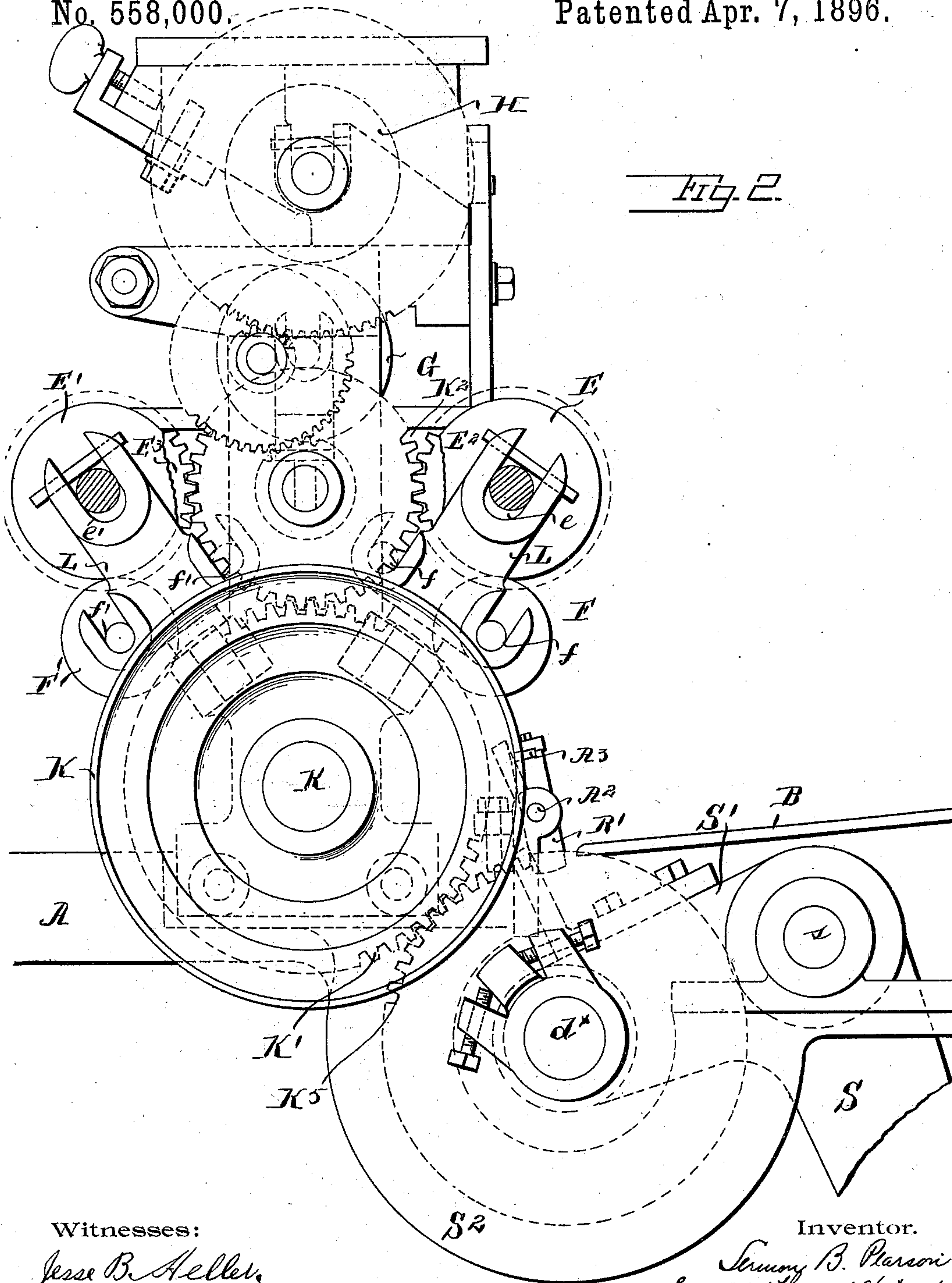
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5 Sheets—Sheet 3.

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Fig. 3

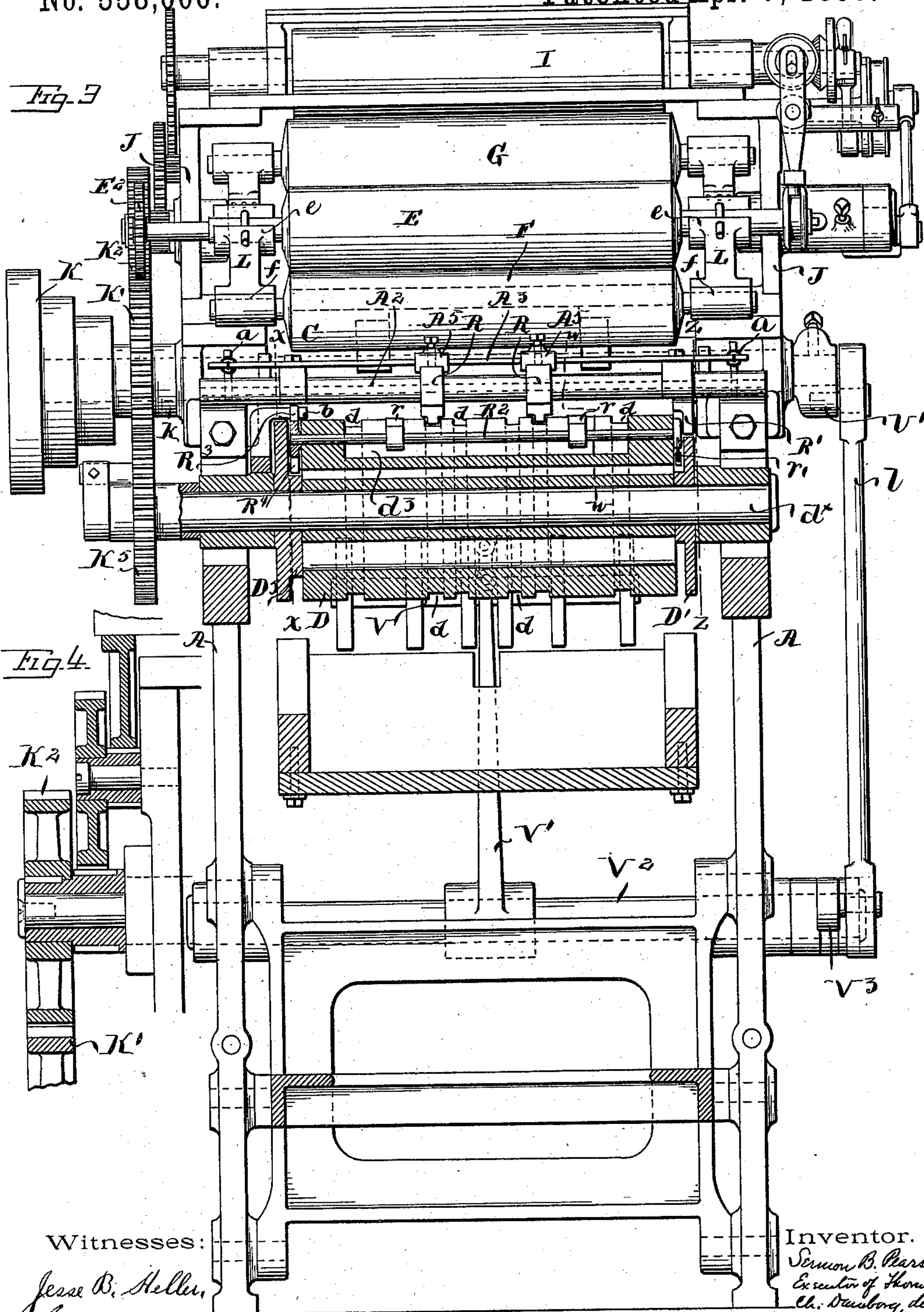
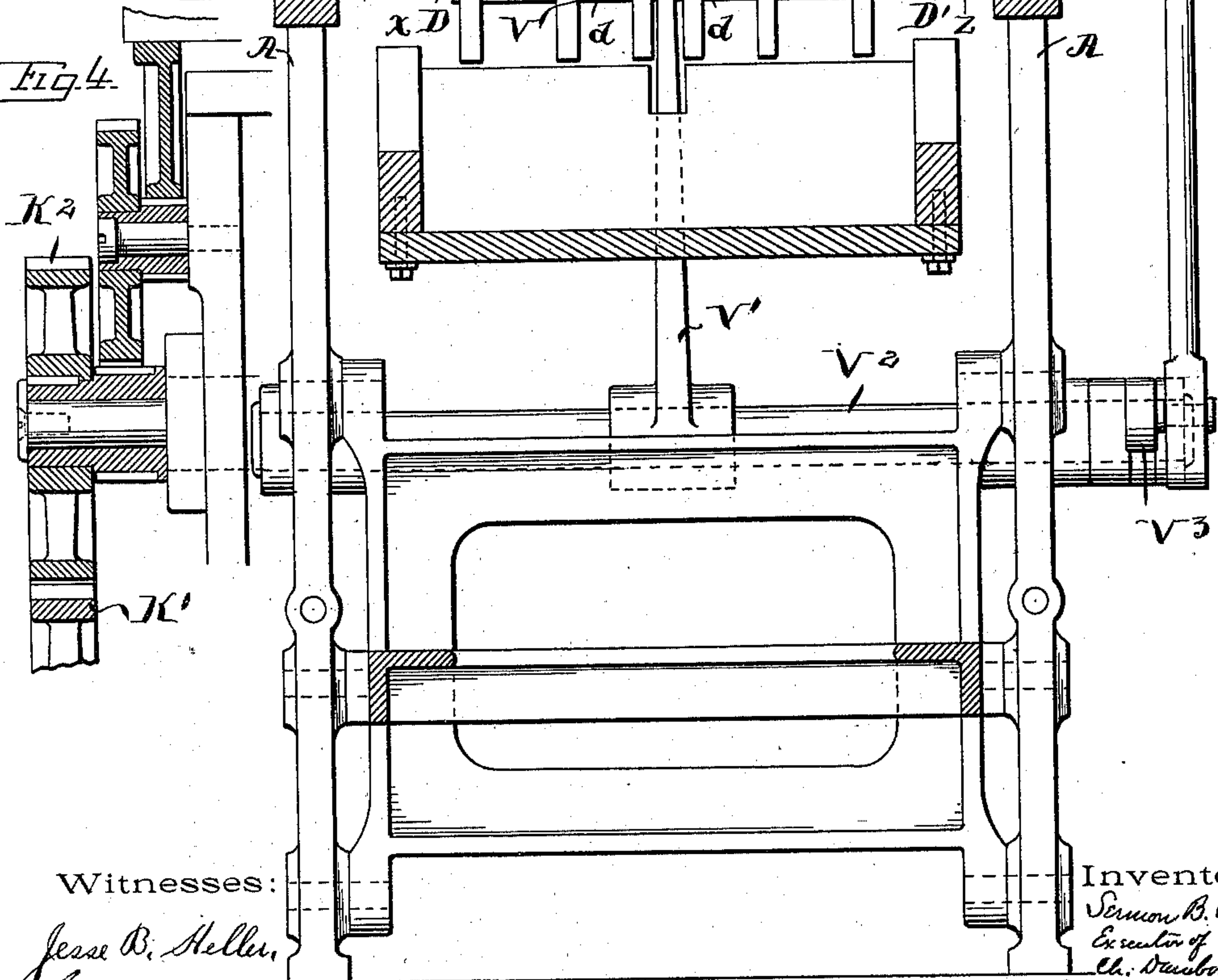


Fig. 4



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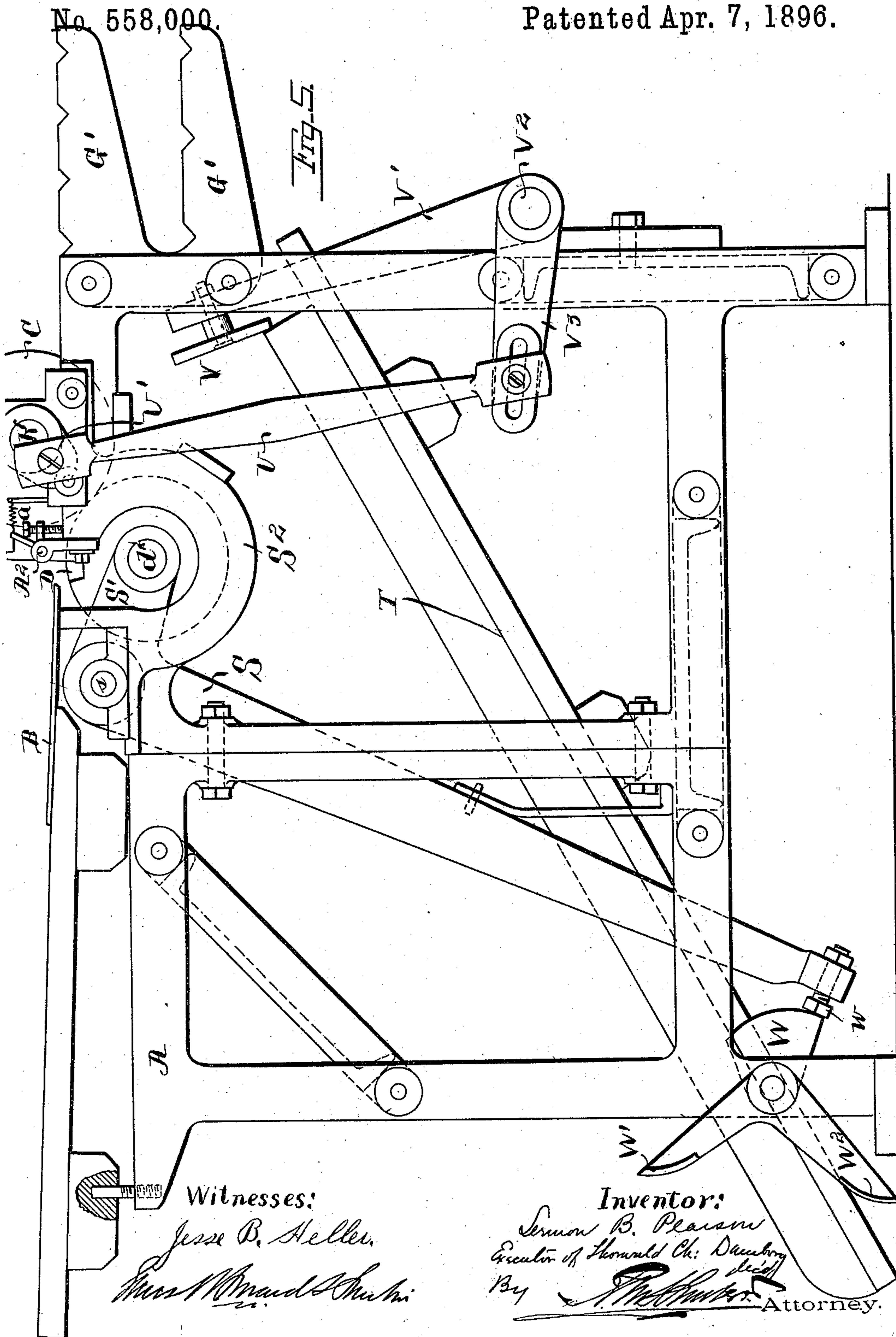
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PRINTING PRESS.

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~~No. 558,000.~~



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UNITED STATES PATENT OFFICE.

SERMON B. PEARSON, OF PHILADELPHIA, PENNSYLVANIA, EXECUTOR OF
THORWALD CH. DAMBORG, DECEASED.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 558,000, dated April 7, 1896.

Original Application filed June 29, 1892, Serial No. 438,394. Divided and this application filed April 4, 1894. Serial No. 506,982. (No model.)

To all whom it may concern:

Be it known that THORWALD CH. DAMBORG, deceased, late of Philadelphia, Pennsylvania, did invent an Improvement in Printing-Presses, of which the following is a specification.

This invention relates to printing-presses; and it consists of certain improvements, which are fully set forth in the following specification and are shown in the accompanying drawings, which form a part thereof.

The object of the invention is to accomplish the printing of cards, envelopes, &c., with great rapidity and precision. In printing-presses designed for this purpose in which the articles to be printed are fed between rotary cylinders great difficulty has been met in accurately feeding the cards or envelopes between the type and the impression cylinders in proper register or position to receive the impression while the required rapidity of operation is maintained.

More particularly this invention relates to the devices for feeding and guiding the cards or objects to be printed.

This application is a division of application Serial No. 438,394, filed June 29, 1892.

In carrying out the invention rotary impression and type cylinders are employed with devices for automatically guiding, centering, and conducting the card, envelop, or article to be printed between the cylinders, so as to bring it into exact position to receive the impression and so as to insure accuracy and uniformity in the printing.

The invention also relates to certain novel combinations and arrangements of parts, which are hereinafter more fully described and claimed.

In the drawings, Figure 1 is a side elevation of a portion of the improved printing-machine, showing the type and impression cylinders. Fig. 2 is a similar view to Fig. 1, looking at the opposite side of the machine. Fig. 3 is a front elevation of the machine on a slightly-reduced scale from that of Figs. 1 and 2, with the lower front portion of the machine in vertical section. Fig. 4 is a vertical sectional view through a portion of the power-transmitting gearing of Fig. 3. Fig. 5 is a

side elevation of the lower portion of the machine upon a scale corresponding with Fig. 3. Fig. 6 is a vertical sectional view on the line xx of Fig. 3. Fig. 7 is a longitudinal sectional view of a portion of the impression-cylinder. Fig. 8 is a vertical sectional view on an enlarged scale on the line zz of Fig. 3, and Fig. 9 is a similar vertical sectional view on the line ww of Fig. 3.

A is the frame of the machine.

B is a feeding-table.

C is the type-cylinder, and D is the impression-cylinder.

E F F and E' F' F' are inking-rollers for inking the type.

J J are upright frames on the sides of the machine, which carry the inking-rollers and type-cylinder.

K is the driving-pulley upon the shaft k . By this shaft k is carried the type-cylinder C.

L L are standards carried by the frames J J and provided with bearings ff and $f'f'$, in which are journaled the inking-cylinders F F and F' F', adjacent to the type-cylinder, to supply ink to the type-plate thereof. The rollers E and E' are journaled in bearings e and e' in the standards L L, adjacent to the rollers F F and F' F', respectively, with their surfaces in contact therewith. The bearings ff $f'f'$ and ee' are preferably open or cup-shaped, as shown, so that the rollers E F F and E' F' F' may be moved therefrom when desired.

K' is a gear-wheel, carried by the shaft k , gearing with a wheel K², by which the inking-cylinders may be operated.

It is to be understood that the particular arrangement of the inking devices and the mechanism for operating them form no part of the present invention.

Any suitable inking devices may be employed; but for the purpose of illustration the inking devices of application Serial No. 438,394, filed June 29, 1892, of which this application is a division, are shown. With these devices the ink is taken from the trough I by a feeding-roller H and is supplied to a rocking roller G, which alternately touches the rollers E and E'.

The improvements for insuring the proper

feeding and centering of the card or envelop between the cylinders C and D will now be described.

A² is a rock-shaft journaled in the main frame A, as in suitable brackets at the end of the feeding-table B, immediately in front of the type-cylinder C.

A³ is a rod or bar immediately above the rock-shaft A² and carried by it.

a are springs connected with the rod A³ to normally hold it and the rock-shaft in a given position.

R R, Fig. 3, are stop-fingers carried adjustably upon the rod A³ and projecting down into the path of the card or envelop and passing between the cylinders. It is preferable to form the cylinder D with grooves *d*, into which the ends of these fingers project, so as to effectually prevent the passage of the card or envelop to the cylinders under the fingers R R except when they are raised. A series of these grooves to receive the fingers R R in their several positions of adjustment to suit different sizes of cards, &c., are employed.

R' is a projection carried by the rock-shaft A², and D' is a cam upon the shaft of the cylinder D, adapted to strike the projection R' and rock the shaft A², so as to lift the fingers R R and permit the card or envelop to pass under them and between the cylinders C and D.

r r are nipping-fingers carried by the cylinder D and adapted when the card or envelop passes under the raised fingers R R to seize and hold the end of it while it passes under the type-plate.

In describing the construction of the cylinders D and E reference, more particularly, is made to Figs. 6, 7, 8, and 9.

D² is the impression-surface carried by the cylinder D, having one end held by a clamp *d'* in a recess *d*³ and the other end turned about a roller D³, journaled longitudinally in the cylinder. The roller D³ may be rotated to unroll or tighten the impression-surfaces.

D⁴ is a ratchet on the end of the roller D³, and *d*² is a pawl engaging therewith to hold the roller against movement.

R² is a rock-shaft journaled in the cylinder D, below the surface thereof and adjacent to the end of the impression-surface D². The nippers or fingers r r are carried by this rock-shaft R² and are adapted when the rock-shaft is turned to be snapped over upon the impression-surface D² to hold the card or envelop thereon. A spring *r'*, connected with the rock-shaft R², normally holds the fingers back. (See Fig. 8.)

R³ is a projection upon the end of the rock-shaft R² and adapted to strike an arm *b* upon the frame A to turn the rock-shaft R² and snap the fingers r r over, as has been heretofore described.

R⁴ is a second projection carried by the shaft R², which is adapted to be operated by a cam D⁵. The arm *b* through the projection R³ turns the shaft R² and snaps the nippers upon the card or envelop, and the cam D⁵, operat-

ing upon the projection R⁴, holds the shaft against movement and keeps the nippers upon the card or envelop until it has passed between the cylinders D and C, when the shaft is turned by the spring *r* and the nippers are moved back to their former position.

C' is the type-plate, which may be attached to the type-cylinder C in any convenient manner.

A preferable manner of securing the type-plate C' to the cylinder C is particularly shown in application Serial No. 506,983, filed April 4, 1894, which is also a division of application Serial No. 438,394, filed June 29, 1892.

The shaft *d* of the cylinder D is journaled in arms S' of the bell-crank levers S, which are fulcrumed to the frame A at *s* and extend down to the base thereof. (See Fig. 5.)

W are cams adapted to bear against the ends of the bell-crank levers S to normally hold the arms S' thereof raised, with the cylinder D in operative position with reference to the type-cylinder C.

W' W² are treadles for operating the cams W to move the bell-crank levers S and raise and lower the cylinder D. The end of the bell-crank levers S may be provided with an adjustable screw *w* to adjust the position of the bell-crank with reference to the cam. By this means the cylinder D may be thrown out of operative position whenever it is desired to stop the operation of the machine and may be raised into operative position again by operating the cams W through the foot-treadle W' W². It is apparent that the bell-crank levers may be moved by hand, if desired.

S² is a portion of the lower main frame A, within which the cylinder D may move. The shaft *d* of the cylinder D is driven by the shaft *k* through the gears K' and K⁵.

T is a chute or guide for the printed cards or envelops in which they are received when delivered from the cylinders C and D.

V is a reciprocating plunger pressing the cards or envelops down the chute T.

V' is a rocking arm carrying the plunger V and carried by a rock-shaft V². The rock-shaft V² is rocked by a pitman U, connected with an arm V³ on the rock-shaft and driven through a crank U' on the shaft *k*.

G' G' are brackets upon the frame of the machine to support the inking-rollers when they are moved from the bearings.

Having described the mechanical construction of the machine, the arrangement of the parts, and their relation one to another, the operation of the devices will now be described.

Power is imparted to the shaft *k* and the cylinders C and D rotate together through the gearing K' and K⁵. Ink is supplied to the type-plate of the cylinder C by the rollers F F' and F' F', which receive ink from the rollers E and E', respectively. These rollers E and E' are rotated through the gearing K², E², and E³. The articles to be printed are fed one at a time from the table B to the fingers R, by which

they are stopped and prevented from passing between the cylinders until the cam D' strikes the projection R' and rocks the shaft A^2 so as to lift the fingers R and permit the card to pass between the cylinders. The arm R^3 of the rock-shaft R^2 strikes the projection or finger b and the nippers r are snapped over upon the card, and the cam D^5 , acting upon the arm R^4 as the cylinder rotates, holds the nippers upon the card until it has been carried between the cylinders C and D and has received the impression from the type-plate C' . After passing the cam D^5 the arm R^4 is released and the rock-shaft R^2 is turned back by the action of the spring r' , moving the nippers back into position to be snapped on the next card in the manner just described and releasing the cam just held. The stop-fingers R may be adjusted longitudinally upon the rod A^3 to suit the size of the card, envelop, or other object, as by the adjustable slides A^5 . When the feeding of the cards or envelops is interrupted temporarily or otherwise, and it is not desirable to stop the entire machine, the cylinder D may be dropped away from the type-cylinder C by operating the bell-crank levers S through the foot-treadle W' , and it may be again raised into operative position by depressing the treadle W^2 . As the printed envelops or cards are released by the nippers r they drop into the chute T , in which they are packed and pushed along by the reciprocating plunger V . As the fingers R , which project down into the grooves d' in the impression-cylinder D , stop the passage of the card between the cylinders, and as the nippers $r r r$ are thrown over upon the card and clamp it when the fingers R are raised, the cards or envelops will always be in proper position to receive the impression when they pass between the cylinders. As the fingers are operated by a rocking of the rock-shaft A^2 , located immediately above the impression-cylinder, their ends will be moved backwardly and upwardly away from the forward edge of the card or envelop, so that they have no tendency to catch the card or envelop and lift or displace it. The use of the bar A^3 , carried by the shaft A^2 for supporting the fingers R , permits the shaft to be brought closer to the surface of the impression-cylinder. It also

renders the adjustment of the fingers more easy and affords means for moving the rock-shaft by hand when it is desired to lift the fingers R for any purpose. The nippers act to positively hold the card and carry it and thus prevent accidental displacement.

The details of construction shown are preferable. They may be varied without departing from the invention.

What is claimed as new, and desired to be secured by Letters Patent, is—

1. In a rotary printing-press, the combination of a rotary impression-cylinder provided with a peripheral groove, a rock-shaft located immediately adjacent to the impression-cylinder and at the delivery-point to the grippers thereof, a stop-finger carried by the rock-shaft and having its end projecting into the peripheral groove of the impression-cylinder so that the card or other object when stopped by said finger may rest upon and be supported by the surface of the cylinder, and devices to rock the rock-shaft at stated intervals and move the end of the finger rearwardly and upwardly out of the peripheral groove in an arc described from a center substantially above the delivery-point to the grippers.

2. In a printing-press, the combination of the rotary type-cylinder C , the rotary impression-cylinder D , the rock-shaft A^2 extending longitudinally above and immediately adjacent to the surface of the impression-cylinder, the bar A^3 carried by the rock-shaft A^2 and extending above and parallel to said shaft, the arm R' carried by the rock-shaft A^2 , the cam D' rotating with the impression-cylinder and adapted to strike the arm R' at stated intervals to rock the shaft A^2 and thereby oscillate the bar A^3 , the spring a for returning the rock-shaft and bar A^3 after they have been operated by the cam, and one or more stop-fingers carried by the bar A^3 .

In testimony of which invention I hereunto set my hand.

SERMON B. PEARSON,

Executor of Thorwald Chr. Damborg, deceased.

Witnesses:

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R. M. HUNTER.