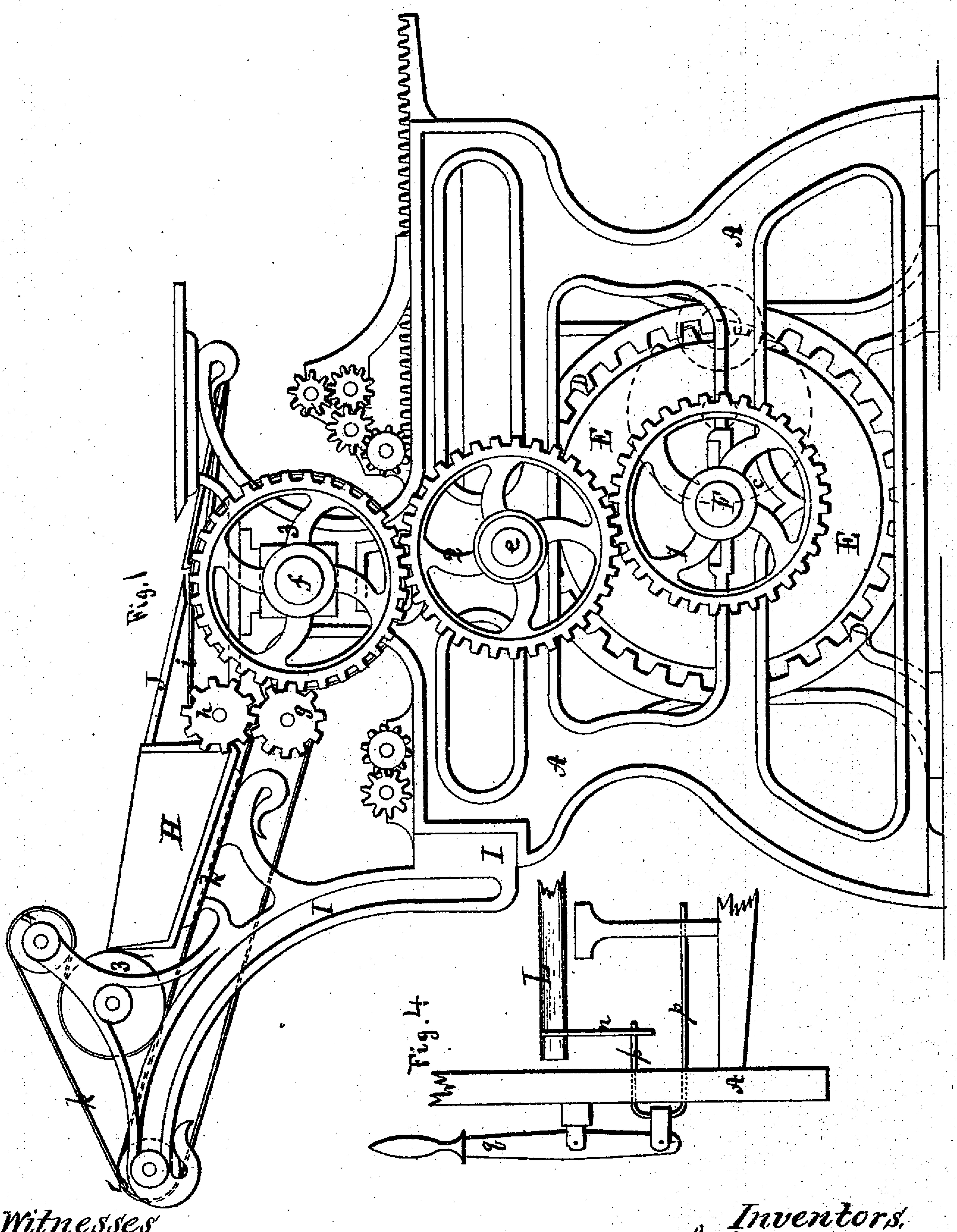
3 Sheets--Sheet 1.

J. WATSON & A. JONES.

Rotary Printing-Presses for Cards and Tickets.

No. 146,792. Patented Jan. 27, 1874.



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C. D. Swan
C H Woodward

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3 Sheets--Sheet 2.

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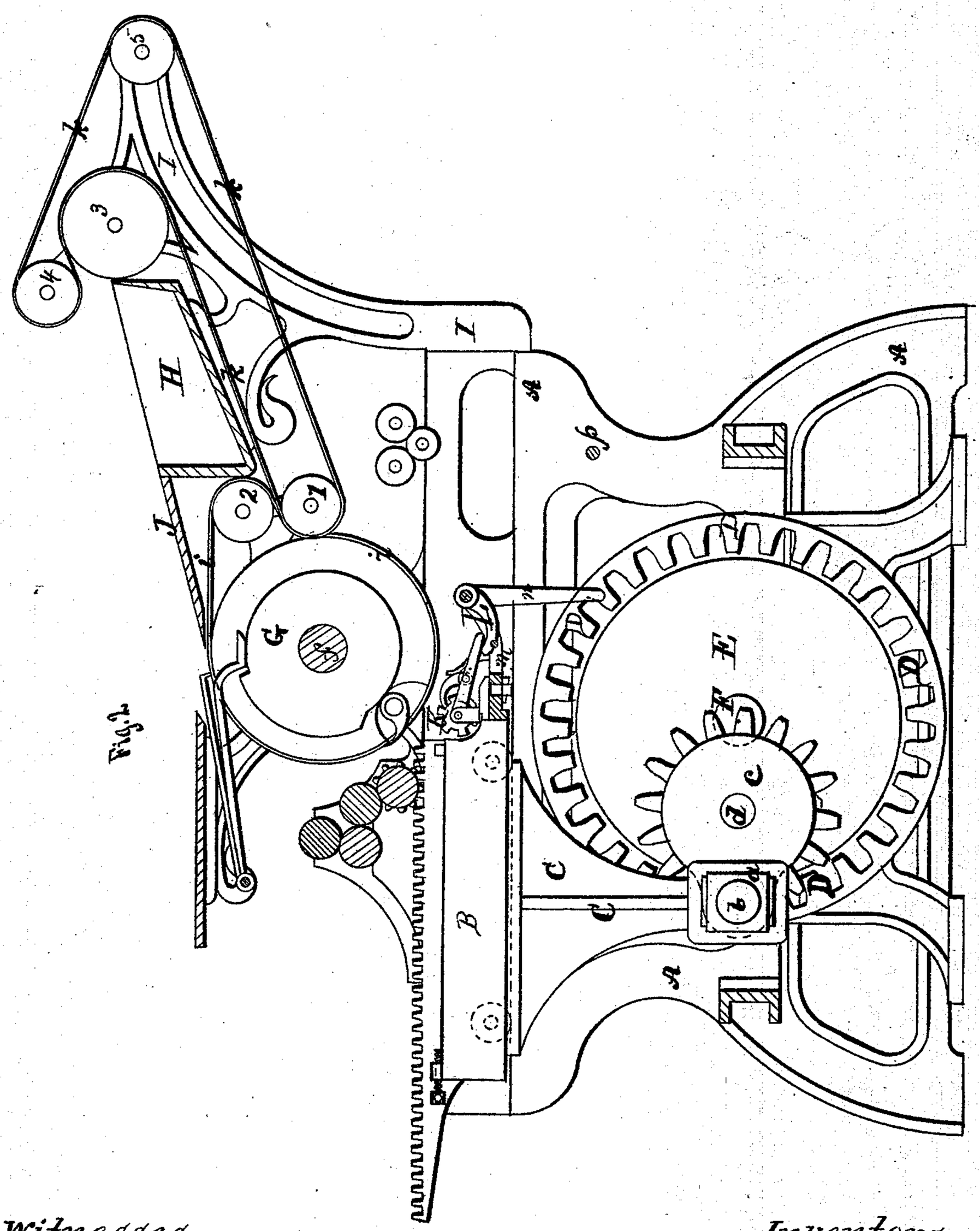

Fig. 1.

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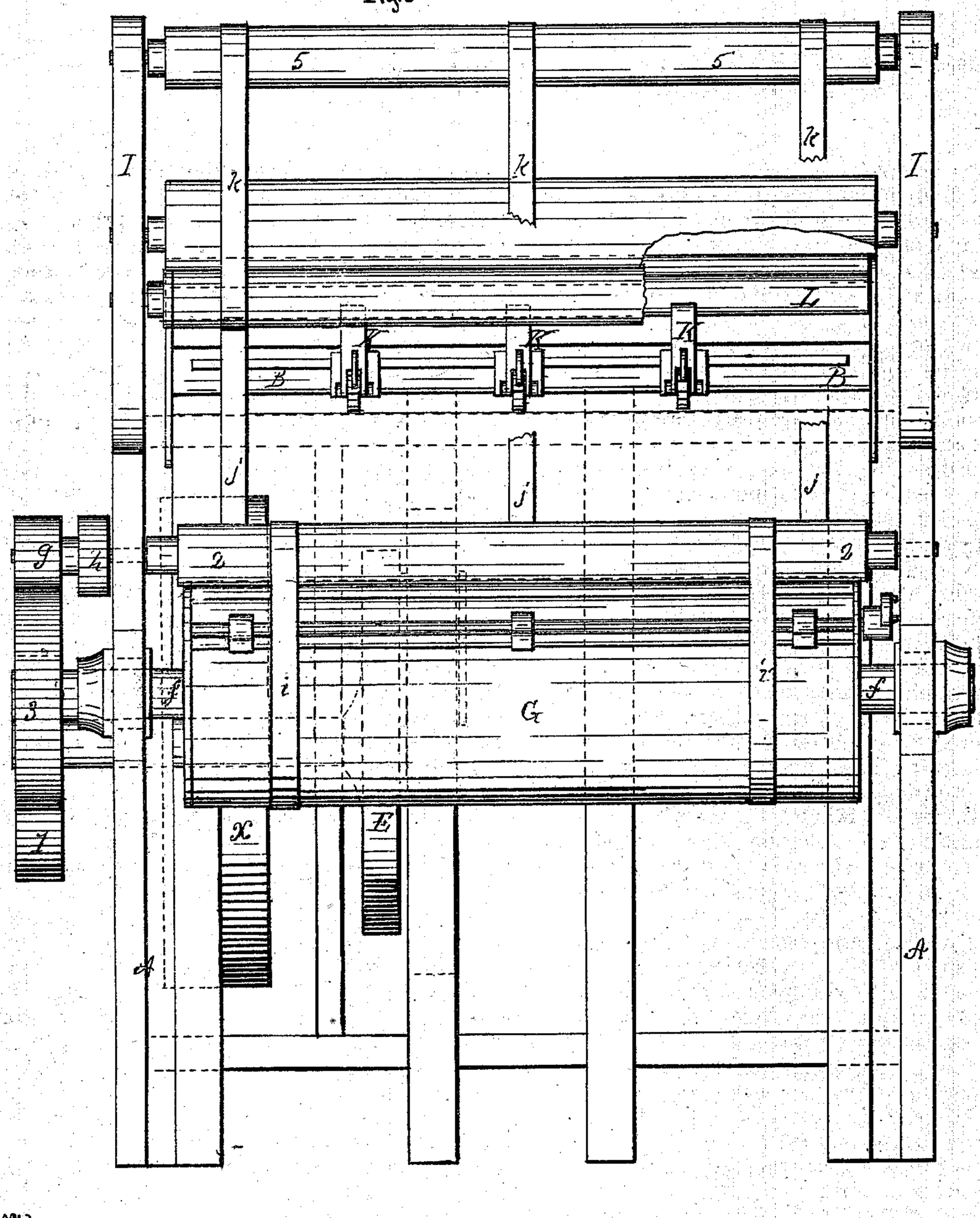
Fig. 3



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UNITED STATES PATENT OFFICE.

JOHN WATSON AND ALBERT JONES, OF BUFFALO, NEW YORK.

IMPROVEMENT IN ROTARY PRINTING PRESSES FOR CARDS AND TICKETS.

Specification forming part of Letters Patent No. **146,792**, dated January 27, 1874; application filed March 14, 1873.

To all whom it may concern:

Be it known that we, JOHN WATSON and ALBERT JONES, both of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Printing-Presses, of which the following is a specification:

This invention relates to cylinder printing-presses, the object of which is to render such more effective in operation.

The improvements are fully hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation. Fig. 2 is a sectional elevation. Fig. 3 is a plan, and Fig. 4 a detail view.

A represents the frame, in the center of which is the type-bed B, made in the usual manner, and having attached to its lower side a hanger or pendent arm, C. This has, in its lower part, an opening, in which is a loose box, *a*, and working in it is a crank-pin, *b*, attached to a pinion, *c*. This pinion or gear-wheel travels inside of, and meshes into, a large internal gear-wheel, D, secured to or forming part of the frame-work A or its legs, as shown. Directly back of this internal gear-wheel is a disk or driving-wheel E, run by the driving-shaft F, and having a crank-pin, *d*, near the edge, on which the pinion *c* moves. This driving-disk carries this pinion or gear-wheel *c* around inside the internal gear-wheel D. By these devices we get a uniform, even, reciprocating movement of the bed, without any jar or catching on the center, and do away with cams, arms, or springs, making the running of the whole press very much smoother and with little noise. X is the fly-wheel, arranged inside the frame A, and one-half of which is weighted to equalize the weight of the traveling-gear *c*. On the outer end of the main shaft F is a gear-wheel, No. 1, which gives motion to a gear-wheel, No. 2, just above it, running on a stud, *e*, attached to the side of the frame A. This intermediary gear is merely to transmit motion to a similar gear-wheel, No. 3, above it, and which operates the shaft *f* of the cylinder G. This cylinder is made in the usual manner. These gear-wheels 1 2 3 are all made exactly alike, and also correspond in size to the cylinder and the traveling-gear *c*, thereby giving a uniform movement to the cylinder, as well as the bed. The cylinder and the three gear-wheels are each just half the size of the circular internal-toothed wheel D, so that when the bed has come forward once and gone back once, the cylinder has made a full revolution, thus making the movement exact. The gear-wheel No. 3 meshes with a small pinion, *g*, (see Fig. 1,) which revolves one of the rollers or paper-carriers, No. 1, (see Fig. 2,) which is also provided with a pinion that meshes with a pinion, *h*, attached to carrier 2 just above it. These rollers take the card or paper, after it is printed, from the nippers of the cylinder, and, by means of tapes *i i' j j'*, running round the cylinder and themselves, carry the paper or cards through the rollers 1 and 2, and deliver them onto tapes *k k'*, and thus up over carrier No. 3, and between Nos. 3 and 4 into the receiving-box H, which is fastened on the supplementary frame I, attached to the main frame A, and in which the above-described carriers 3, 4, and 5 run. This last roller or carrier, No. 5, is merely for the purpose of forming the series of carriers, and for the purpose of returning the tapes. The feeding-table J forms a part of the receiving-box H.

To print the numbers on the cards, &c., we arrange or set in the front of the bed B any suitable numbering device or wheels, as shown by examples K, Figs. 2 and 3.

To operate the device or wheel, we attach arms *m m'*, (see Fig. 2,) to the sides of the bed B, which sustain a long cam, L, constructed as shown. Near the end of this cam depends a loose lever, *n*, that swings forward, but not backward. This lever raises the cam L at every forward movement of the bed by striking against a long rod, *p*, set loose in the frame A, as shown, and which is operated outside the frame by a lever-handle, *q*. As the cam L lifts, it raises the pawl or ratchet of the numbering device, changing the number every time.

If the cards or paper to be numbered should get wrongly into or misplaced in the press, the numbering can be stopped at once by merely shoving in the lever-handle *q*, which partly pulls out the rod *p*, preventing its engagement with the loose lever *n*. If this were not done, the next impression would be spoiled, or it would derange the regular numbering of the

sheets or cards, or the press would have to be stopped and the numbering-wheel set right. By these simple devices this is avoided.

When the same number is desired to be repeated on the cards, &c., the lever *n* is left to hang and the rod *p* kept drawn out of its way.

The operation of printing these sheets of cards or coupon-tickets, for which this press is more especially intended, is as follows: The paper or card-board is cut double size, and is passed through the press by being carried over the cylinder, where it first comes in contact with the numbering-wheels, (attached as shown;) then, as the bed moves forward, the body of the ticket is printed. By this process one-half the sheet is numbered and the other half printed. To finish the operation, and make complete printed and numbered tickets, the card-board is reversed, so that the part that before first received the impression of the numbers now receives the impression of the type, and vice versa, thus making each row or line of cards and numbers the counterpart of the other, except, of course, that the numbers are different.

We claim—

1. In combination with the reciprocating bed B, the circular internal spur-gear D, forming part of the frame A, gear-wheel *c*, crank-pin *b*, box *a*, hanger C, pivot *d*, and driving-disk E, all constructed and operating substantially as described.

2. The supplementary frame I, attached to the main frame A, and carrying the rollers 1, 2, 3, 4, and 5, as shown, in combination with the cylinder G, tapes *i j k*, and receiving-box H, all constructed to operate substantially as described.

3. In combination with the numbering device K, the cam L, loose lever *n*, rod *p*, and lever *q*, all constructed and operating as herein described, for the object specified.

4. The weighted fly-wheel *x*, in combination with the driving-disk E, spur-gear D, and traveling pinion *c*, all constructed substantially as described, for the purpose specified.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JOHN WATSON.
ALBERT JONES.

Witnesses:
J. R. DRAKE,
DAVID F. DAY.