

C. B. COTTRILL

PRINTING-PRESS.

No. 175,036.

. Patented March 21, 1876.

Fig. 1.

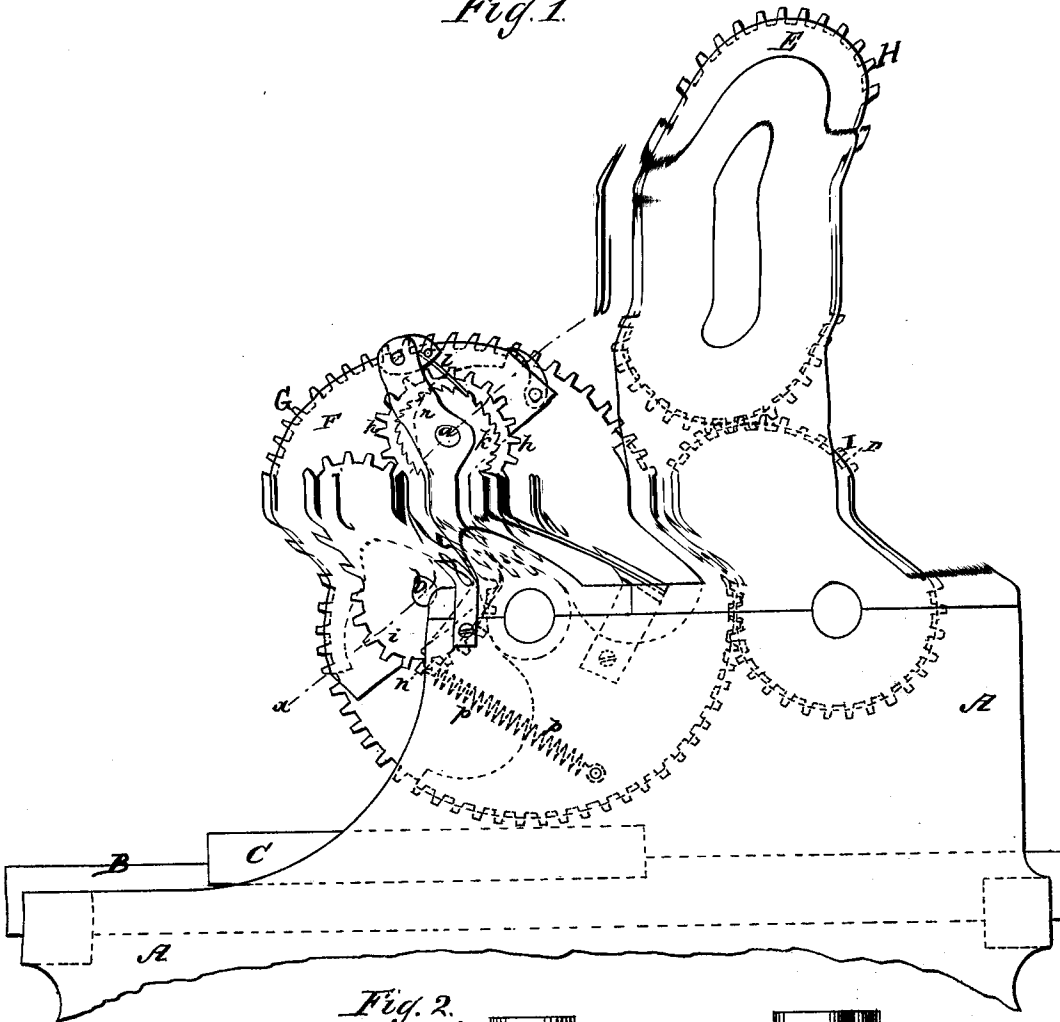


Fig. 2.

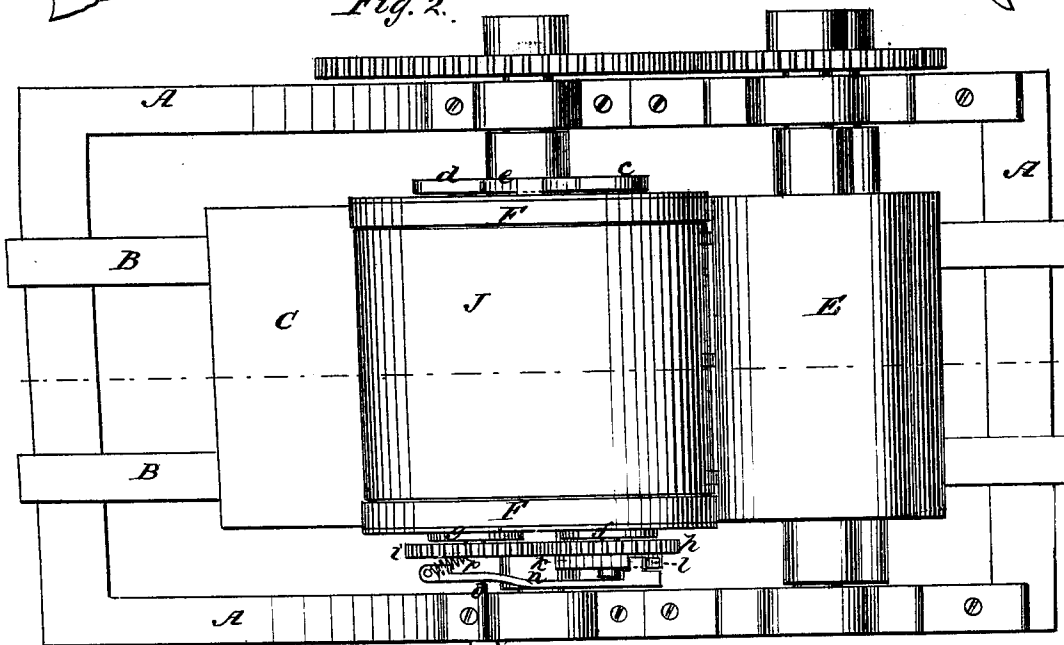


TABLE 2. — *Continued.*

Inventor:

UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **175,036**, dated March 21, 1876; application filed February 1, 1876.

To all whom it may concern:

Be it known that I, C. B. COTTRELL, of Westerly, in the county of Washington in the State of Rhode Island, have invented new and useful Improvement in Printing-Presses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Previous to my invention it has been customary, in that kind of perfecting-presses in which a reciprocating bed and flat-type form are employed to print one side of the sheet, to employ "slip-sheets" on the impression-cylinder, and such use of slip-sheets has rendered necessary the presence of suitable means for the feeding in and removal of the slip-sheets, and an attendant to manipulate them. It has also been customary to use in such perfecting-presses a tympan which could be shifted or removed when required to avoid the use of slip-sheets; but, while without the use of slip-sheets the machine was simpler, it did not work so successfully.

My invention has for its main object to provide for use a perfecting-press of the kind alluded to, which, without the use of any slip-sheets, shall be capable of doing better and faster work than those heretofore made to use without slip-sheets, and as fast and as good work as those heretofore made which were adapted to use the slip-sheets; and to these ends and objects my invention consists in the use, in combination with the impression-cylinder and the reciprocating type-bed, between which the printing of the sheet on the second side is effected, of an automatically-shifting tympan, as will be hereinafter more fully set forth; and my invention further consists in the use, in combination with a movable or shifting tympan, of temples or spreaders, to spread the tympan-cloth sidewise, or keep it distended smoothly, all as hereinafter to be fully explained; and my invention further consists in the combination, with an impression-cylinder and a moving tympan, of means for winding or shifting the tympan in either direction, all as hereinafter to be more fully described.

To enable those skilled in the art to make and use my invention, I will proceed to more

fully describe it by reference to the accompanying drawings, in which—

Figure 1 is a side elevation, Fig. 2 a top view, and Fig. 3 a longitudinal vertical section, of so much of a printing-press as is necessary for the complete illustration of my invention. Fig. 4 is a detail view of that end of the second impression-cylinder which is opposite to the end seen in Fig. 1, and Fig. 5 is a detail sectional view at the line *xx* of Fig. 1.

In the several figures the same part will be found designated by the same letter of reference.

A is the main frame of the press, in which is mounted, to travel back and forth on ways B, the usual reciprocatory bed C. The mechanism for moving this bed is not shown in the drawings. D is the first-impression cylinder, and E the type or "form" cylinder, which operates in conjunction therewith, while F is the second-impression cylinder, or that one which works in conjunction with the flat form or bed C in printing the second side of the sheet. The two impression-cylinders and the form-cylinder just referred to are geared together by spur-wheels G H I, as shown, and the motive power for driving them is applied to gear I in any of the usual ways from the main driving-shaft of the machine. Over that portion of the periphery of the impression-cylinder F, which is usually brought into use during the printing of the second side of the sheet, is arranged an automatically-shifting tympan or blanket, J. This tympan J is attached at each end to a roll or rod, lettered, respectively, *a* and *b*, and it is wound or shifted automatically, and with an intermittent motion, from one to the other of said rollers, in a manner and by means to be presently described. The rolls *a* and *b* are suitably mounted in bearings in the heads of the cylinder F, and are located as near the axis of said cylinder as may be convenient. Said rollers are provided each at one end with a fast wheel or collar, *c* *d*, against the periphery of each of which collars is exerted a constant pressure by a spring, *e*, properly made and arranged on the head of cylinder F, to perform thus the office of a constant friction-brake on the wheels *c* and *d*.

The mechanism or devices just alluded to, and their operation, will be most clearly seen

on the surface of the cylinder by the action of the temples, and that, by simply adjusting the ratchet mechanism, as set forth, the movement of the tympan can be changed as to direction so as to wind it from one roll to the other and back again as often as may be expedient or advisable; and it will be understood that the several features of my invention may, with more or less advantage, be used separately; and in carrying out each, various modifications in the details of construction of the machine may be adopted.

Having so fully explained my invention that those skilled can make and use it, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the second impression-cylinder of a perfecting-press, having a reciprocating bed and flat form, of an auto-

matically-shifting tympan, substantially as and for the purpose set forth.

2. In combination with an impression-cylinder and shifting-tympan, means for spreading the tympan widthwise, substantially as described.

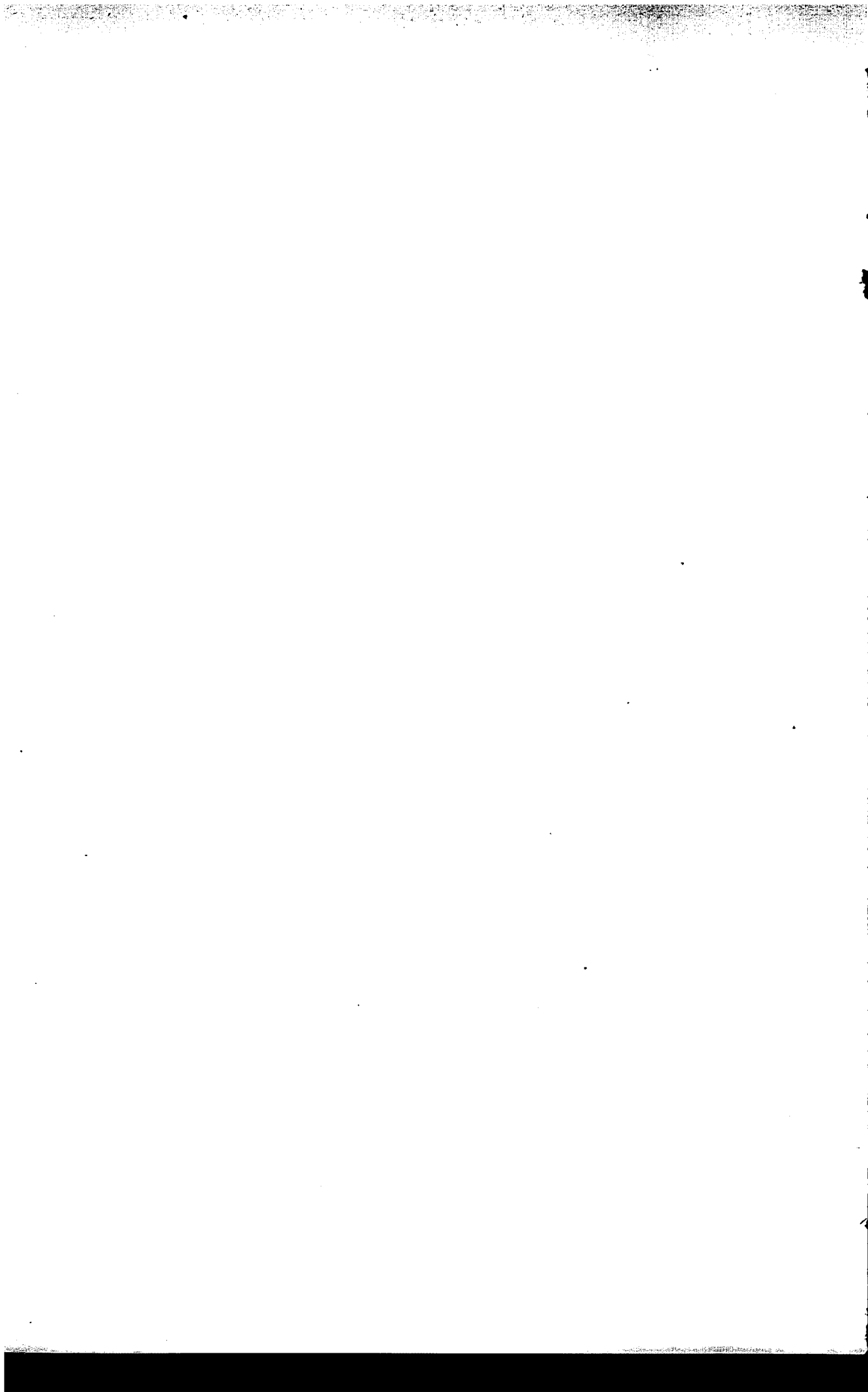
3. In combination with an impression-cylinder and shifting-tympan, means for effecting the intermittent movement or shifting of the tympan in either of two directions, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand and seal this 21st day of January, 1876.

C. B. COTTRELL. [L. S.]

In presence of—

J. N. McINTIRE,
JACOB FELBEL.



Patented March 21, 1876.

This technical drawing illustrates the internal mechanism of a mechanical watch, specifically the gear train and escapement. The components are labeled with letters:

- A**: The main plate or case, shown as a rectangular frame.
- B**: A large gear wheel, likely the main wheel or escape wheel.
- C**: A smaller gear wheel, possibly a pinion or intermediate gear.
- D**: A gear wheel on the right side of the mechanism.
- E**: The balance wheel, which oscillates to regulate the watch's timekeeping.
- F**: The balance spring (hairspring) attached to the balance wheel.
- G**: A component of the escapement, likely the escape wheel.
- H**: A component of the escapement, likely the pallet fork.
- I**: A component of the escapement, likely the pallet fork.
- J**: A component of the escapement, likely the pallet fork.
- K**: A component of the escapement, likely the pallet fork.
- L**: A component of the escapement, likely the pallet fork.
- M**: A component of the escapement, likely the pallet fork.
- N**: A component of the escapement, likely the pallet fork.
- O**: A component of the escapement, likely the pallet fork.
- P**: A component of the escapement, likely the pallet fork.
- Q**: A component of the escapement, likely the pallet fork.
- R**: A component of the escapement, likely the pallet fork.
- S**: A component of the escapement, likely the pallet fork.
- T**: A component of the escapement, likely the pallet fork.
- U**: A component of the escapement, likely the pallet fork.
- V**: A component of the escapement, likely the pallet fork.
- W**: A component of the escapement, likely the pallet fork.
- X**: A component of the escapement, likely the pallet fork.
- Y**: A component of the escapement, likely the pallet fork.
- Z**: A component of the escapement, likely the pallet fork.

E. Wolff.

Jacob Felbel

C. B. Cottrell
 By attorney.
 J. M. Lurie.