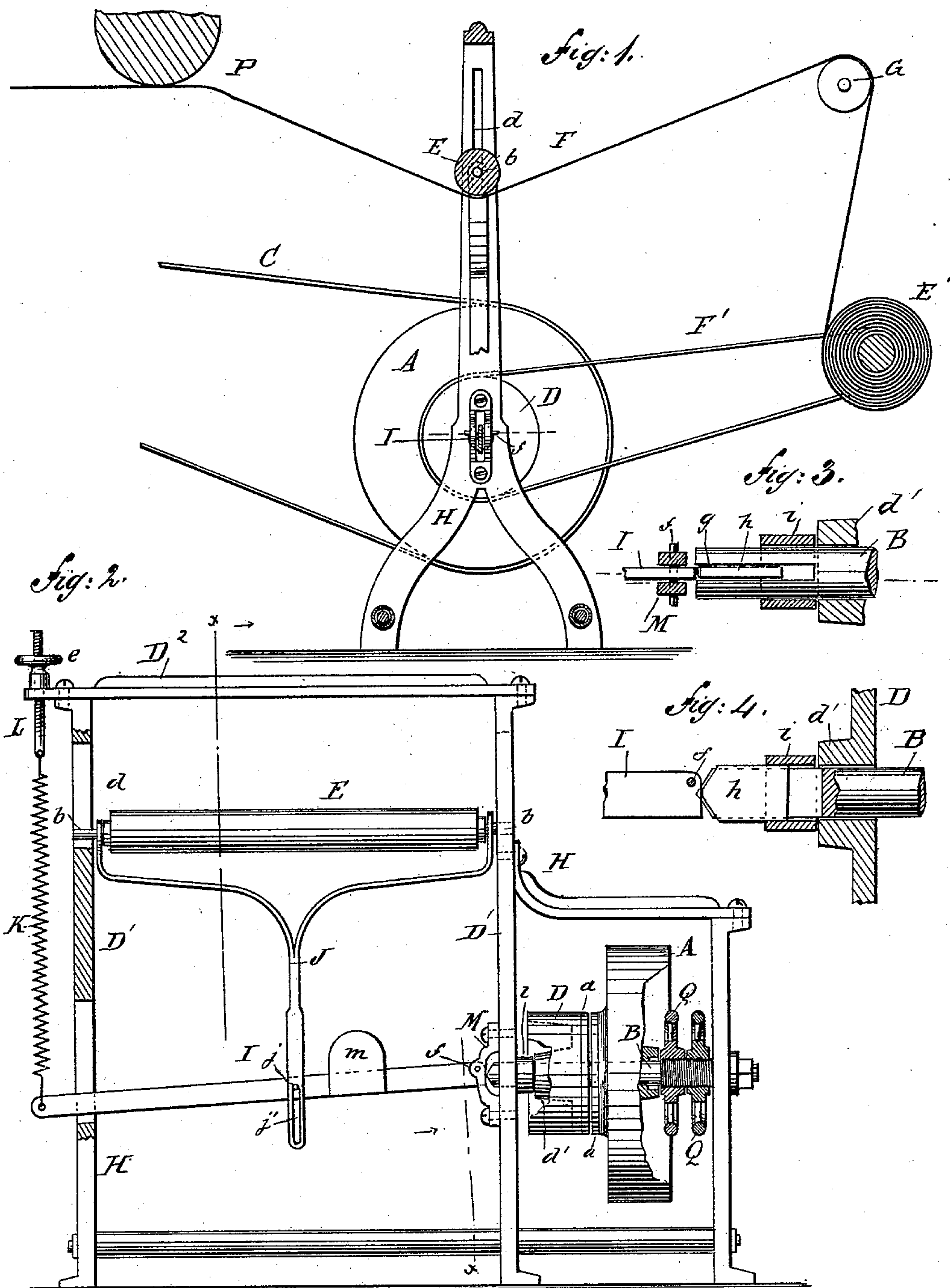


(No Model.)

J. C. BILL.
AUTOMATIC CLUTCH AND TENSION MACHINE.

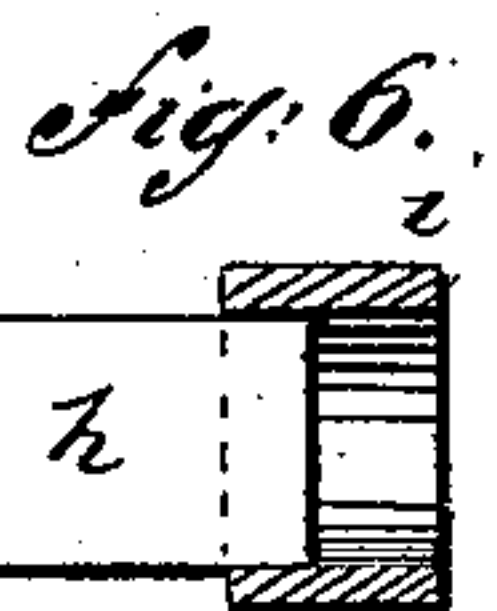
No. 400,998.

Patented Apr. 9, 1889.



WITNESSES:

Chas. Nida
e. Sedgwick



INVENTOR:

J. C. Bill
BY *Munn & Co*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JEREMIAH C. BILL, OF WILLIMANTIC, CONNECTICUT.

AUTOMATIC CLUTCH AND TENSION MACHINE.

SPECIFICATION forming part of Letters Patent No. 400,998, dated April 9, 1889.

Application filed June 8, 1888. Serial No. 276,489. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH C. BILL, of Willimantic, in the county of Windham and State of Connecticut, have invented a new and Improved Automatic Clutch and Tension Machine, of which the following is a full, clear, and exact description.

My invention is designed for use in printing labels in long lengths or in other situations where a web, ribbon or tape, or strip is moved intermittently and wound into a roll or otherwise treated, so that it should be kept constantly taut.

In printing labels on the "Kidder" printing-press, for example, the strip of paper passes from the press through my automatic tension-machine, thence to a roller or drum, which is given an intermittent motion and on which the strip of paper is wound. The strip is kept constantly taut, and is wound into a perfect roll upon the drum and the machine is perfectly automatic.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my invention on line *xx* of Fig. 2, showing the tape as it passes from the printing-cylinder or other object to the winding-drum. Fig. 2 is a broken front elevation of the tension-machine, and Figs. 3, 4, 5, and 6 are detail views of parts of the machine.

The pulley A on shaft B is given a uniform speed of revolution by the belt C. Upon the shaft B is placed loosely the small pulley D, which turns the winding drum or roller E' by belt F'. The adjacent surfaces of the pulleys A D are adapted to be clutched together by friction or otherwise. In this instance they are faced with disks *a*, of rubber, leather, or other material, suitable to cause the pulley D to be revolved by the pulley A when the former is pressed against the latter.

A represents the tension bar or roller under which the strip F, of paper or other material, passes, the same coming from a printing-press, and passing from the tension-roller E over the guide-roller G to the drum E'. The shaft or gudgeons *b b* of the tension-roller E work in slots *d d* in the side pieces, D' D', of the main H. The said tension-roller is sup-

ported mainly from the lever I by the support or frame J, connected at its lower end to the lever I by pin *j* and slot *j'*. The outer end of the lever I is supported by the coiled spring K, attached at its upper end, by preference, to the adjusting-rod L, held by adjusting-nut *e* upon one end of the top cross-piece, D², of the main frame. The opposite end of the said lever I is pivoted at *f* in a bracket, M, attached to one of the side pieces, D', of the main frame in substantial coincidence with the line of the shaft B. The inner end of the shaft B adjacent to the lever I is slotted, as shown at *g*, Fig. 3. In this slot is placed a pointed plate, *h*, the point of which impinges against the end of the lever I below the pivot *f*, so that vertical movement of the roller E, frame J, and lever I will impart horizontal movement to the plate *h*. The plate *h* in this instance is connected to the sleeve or ring *i*, placed loosely upon the shaft B, and impinges against the boss *d'* of the pulley D, so that the outward movement of the plate will force the pulley D in contact with the pulley A and cause it to revolve therewith, while inward movement of the plate and ring will release the pulley D from the pulley A and stop the revolution of the drum E.

In use the roller E rests upon the strip F between the press P and the guide-roller G. When the strip is held by the press in making each impression, the strip F will be drawn taut by the drum E', whereupon the roller E will be lifted by the strip, which will lift the lever I and permit an outward movement of the plate *h* and ring *i*, thus releasing the pulley D from the pulley A and automatically stopping the revolution of the drum E'. Between each impression of the printing-press the strip F is free, and the weight of the roller E therein holds it taut, and the downward movement of the roller E causes lever I to force the plate *h*, ring *i*, and pulley D outward, causing the latter to clutch with the pulley A, thus starting the drum E'.

The action of the roller E may be adjusted by the nut *e*; also by sliding the weight *m*, placed upon the lever I, as shown in Fig. 2.

Q Q are adjusting-screws on shaft B, by which the pulley A may be adjusted to or from the pulley D, so that a greater or less movement of the pulley D will effect the clutching

as circumstances require. In this manner the strip is always kept taut, and the strip is perfectly wound upon the drum, and the action is perfectly automatic and requires no attendant.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The automatic clutch and tension machine comprising pulleys A D, adapted to be clutched together, a tension weight or roller, E, supported on a lever, I, and intermediate mechanism placed between the lever I and pulley D, whereby vertical movement of the

lever I will impart horizontal movement to the pulley D, substantially as described.

2. The lever I, supported at its outer end by the spring K and pivoted at its opposite end at *f*, in combination with the roller E, frame J, pulleys A D, plate *h*, and ring *i*, the plate *h* impinging against the end of the lever I below its pivot *f*, substantially as described.

JEREMIAH C. BILL.

Witnesses:

HENRY N. WALES,
BURT. L. DORMAN.