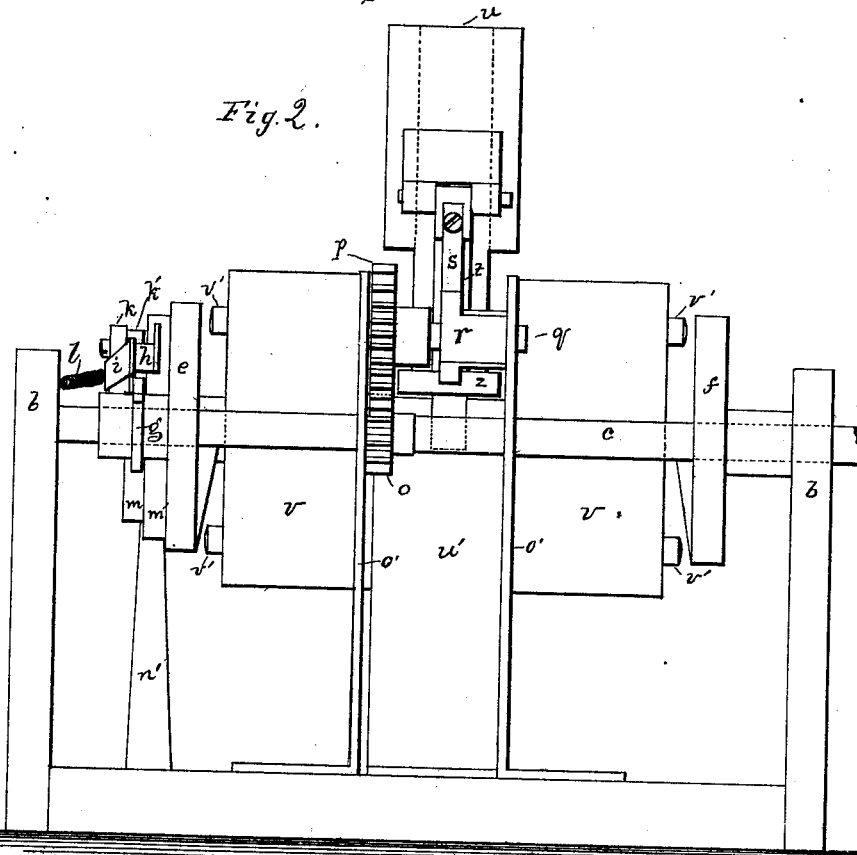
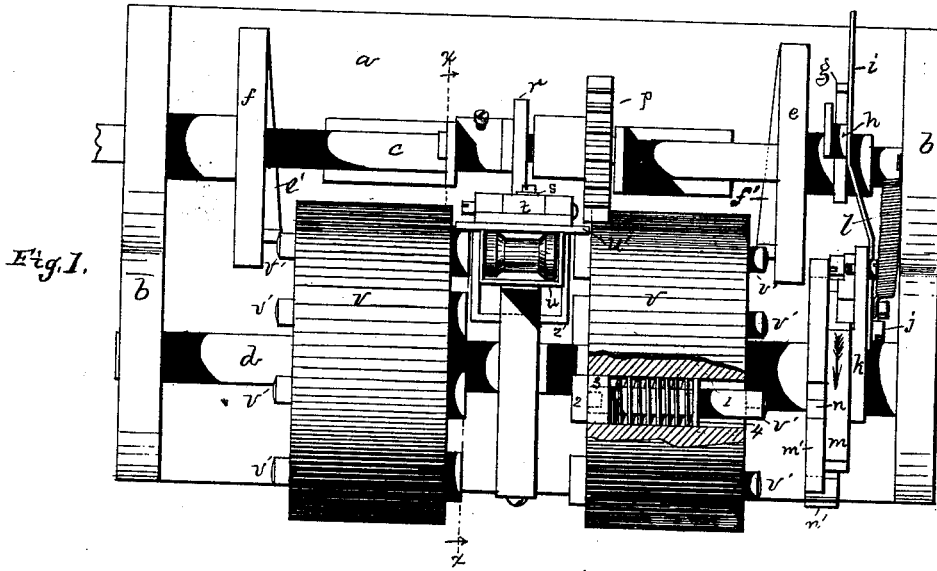


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Spool-Printing Machine.

No. 197,331.

Patented Nov. 20, 1877.



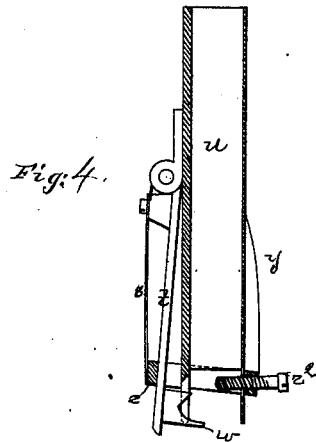
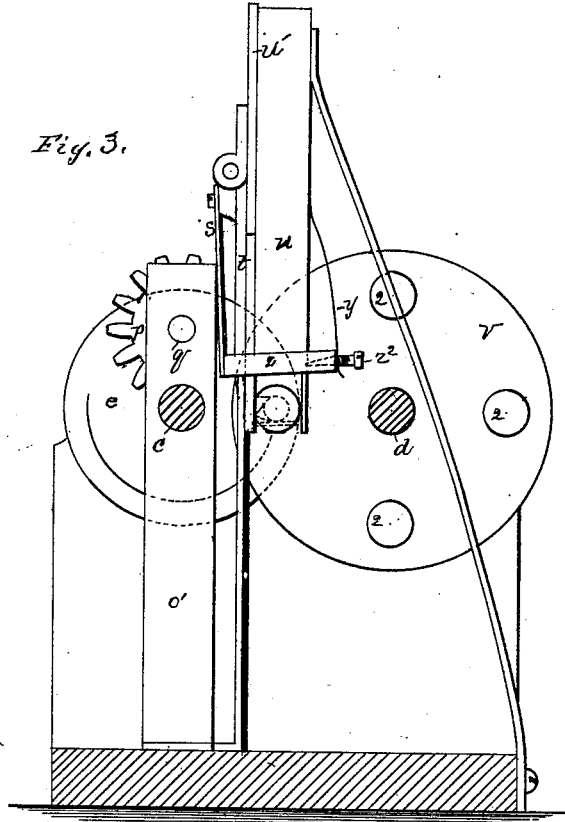
Witnesses.
C. H. Latimer.
Wm. C. Gann

Inventors
Chas. M. Chase, and Arthur C. Gould
 by *Joseph Adams* Attys.

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UNITED STATES PATENT OFFICE.

CHARLES M. CHASE AND ARTHUR C. GOULD, OF BOSTON, MASSACHUSETTS,
ASSIGNORS TO SAID GOULD.

IMPROVEMENT IN SPOOL-PRINTING MACHINES.

Specification forming part of Letters Patent No. 197,331, dated November 20, 1877; application filed August 25, 1877.

To all whom it may concern:

Be it known that we, CHARLES M. CHASE and ARTHUR C. GOULD, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Machine for Printing or Embossing Spools, of which the following is a specification:

This invention relates to an improvement in machines for printing or embossing the ends of spools for holding thread, silk, or similar material; and it consists of a series of reciprocating printing-dies, mounted in one or more intermittently-revolving cylinders, the dies being moved forward against the stress of a spiral or other spring by the action of a cam, and so timed as to act upon the end or ends of a spool presented to them by the mechanism connected with a feed-tube, into which the spools to be printed or embossed are placed.

The machine herein shown and described is designed to print or emboss both ends of the spool or the labels thereon simultaneously; but by substituting smooth faces for the dies in one of the die-cylinders, only one end of the spool would be operated upon.

In the accompanying drawings, Figure 1 is a plan of a machine embodying our invention; Fig. 2, a rear view of the same; Fig. 3, a section on the line *x x*, Fig. 1; and Fig. 4 is a view in detail of the feed-tube and the mechanism connected therewith.

a is the platform, to which is attached the end frames *b b*, in the upper portion of which the shafts *c d* have their bearings. Near each end of the shaft *c*, just inside of the frames *b b*, are fixed two disks, *e f*, which act upon the outer ends of the reciprocating printing-dies *v' v'* through cams *e' f'* upon their (the disks') inner faces.

Fixed to a hub on the disk *e* is a finger, *g*, which acts upon a stud, *h*, on an arm, *i*, pivoted at *j* to a vibrating arm, *k*, on the shaft *d*. The free end of the arm *i* is held down upon the hub of the disk *e* by a spring, *l*. The arm *k* carries a pawl, *k'*, which engages with the teeth of a ratchet-wheel, *m*. Fixed upon the shaft *d*, on one side of the wheel *m*, and forming part thereof, is a disk or wheel, *m'*, of larger diameter, having upon its periphery a series of V-shaped notches, *n*, to receive a spring-

pawl or holding-finger, *n'*, which prevents any movement of the ratchet-wheel while the cams are operating upon the dies, and the pawl *k* is moving backward to engage with another tooth on the ratchet-wheel *m*.

The shaft *c* has, near its center, a small gear-wheel, *o*, which engages with a larger gear, *p*, just above it on the shaft *g*, supported in bearings *o'*, resting upon the platform *a*. At the side of the gear *p*, on the shaft *g*, is a cam, *r*, which acts upon a spring, *s*, fixed to a hinged arm, *t*, on the back of the plate *w'*, to which the feed-tube is attached.

The back portion *u'* of the spool-tube is composed of sheet metal or other suitable material, and extends from the platform *a* up between the die-carrying cylinders *v v*, and has upon its front side the feed-tube *u*, into which the spools to be printed or embossed are placed. The bottom of this tube *u* is about on a level with the shaft *d*.

The hinged arm *t* on the back of the piece *w'* has on its lower end a finger or support, *w*, which projects forward beneath the tube *u*, in which the unprinted spools are placed, and supports a spool in position to be acted upon by the printing or embossing dies on the holders *v'* in the cylinders *v v*. This finger *w* is held in position beneath the feed-tube by the cam *r* against the stress of a spring, *y*, on the front of the tube *u*.

Just above the finger *w*, on the arm *t*, is a rectangular frame or band, *z*, which surrounds the spool-tube, and carries upon its front side an adjustable finger, *z'*, which projects into the spool or feed tube through an opening in the lower end of the face of the latter. When the finger *w* releases the printed spool, the finger *z'* passes into the feed-tube below the spool next above the printed spool, and thus prevents it from falling downward until the returning finger *w* is in position to receive and support it.

The printing or embossing die is attached to a holder composed of a cylindrical metallic shank, 1, upon one end of which is screwed or otherwise fastened the die-head 2, upon the face of which the design to be printed or embossed is sunk. Behind this die-head, fitting loosely upon the shank, is a collar, 3, in which

the shank 1 reciprocates. This collar is fixed firmly in the mouth of an opening made in the cylinders *v v* for the reception of the die-holder.

Upon the shank of the die-carrier, and near the end opposite the die-head, is fixed another collar, 4, between which and the loose collar 3 is a spiral spring, surrounding the shank of the die carrier or holder, which serves to bring the holder back into position after the cams have acted upon and released it.

The die-head is designed to be so attached to the holder-shank as to enable it to be adjusted to project more or less from the cylinder, for the purpose of making lighter or heavier impressions, as desired, for printing or embossing.

The operation of the machine is as follows: The shaft *c*, rotating, carries with it the cam-disks *e* and *f*. The finger *g* on the hub of the disk *e* strikes against the stud *h*, carrying the stud with it, and through it and the arms *i* and *k* the pawl *k'* is caused to move the ratchet-wheel *m* forward (in the direction of the arrow shown in Fig. 1) one-quarter of a revolution, or less, according to the number of the dies in the die-carrying cylinders. The finger *g* having released the stud *h*, the spring *l* brings the stud and arms with which it is connected back into position, to be again acted upon by the finger. The partial revolution of the shaft *d* brings two opposite dies into position beneath the feed-tube, where a spool is held ready to be printed. At this time the disks *e f* have come into position to cause the cams *e' f'* to act upon the outer ends of the die-holders *v'*.

The cam *r* on the shaft *q* is so timed as to cause the finger *w* on the lower end of the hinged arm *t* to release the printed spool as soon as the cams, ceasing to act upon the outer ends of the die-carriers *v'*, allow their springs to carry them back from the spool.

As the finger *w* moves backward to let the

printed spool drop away from the action of the machine, the finger *z'*, moving in the same direction, holds the spool just above the one printed until the return of the finger *w* causes it to release the spool and let it drop into position to be printed.

We claim—

1. In a machine for printing or embossing the ends of spools, the combination of the intermittently-rotating die-carrying cylinders and reciprocating die-carriers, substantially as shown and described.

2. In a machine for printing or embossing the ends of spools, the combination of the intermittently-rotating die-carrying cylinders, the die-carriers reciprocating therein, and the operating-cams mounted upon the driving-shaft, substantially as shown and described.

3. In a machine for printing or embossing the ends of spools, the combination, with the intermittently-rotating die-carrying cylinders, of a spring-stop operating to prevent motion in said cylinders while the die-carriers are being pressed forward by the cam-surfaces, substantially as set forth.

4. In a machine for printing or embossing spools, the combination, with the feed-tube, of a depending arm hinged thereto, and carrying a collar, which surrounds said tube and supports the spool-stops upon opposite sides thereof, and the operating-cam adapted to force the hinged arm against the action of a returning-spring, the several parts being arranged, with reference to the die-carriers, substantially as shown and described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

C. M. CHASE.
A. C. GOULD.

Witnesses:

J. H. ADAMS,
L. H. LATIMER.