

(No Model.)

C. B. COTTRELL.

OFFSET MECHANISM FOR PRINTING MACHINES.

No. 484,531.

Patented Oct. 18, 1892.

Fig. 1.

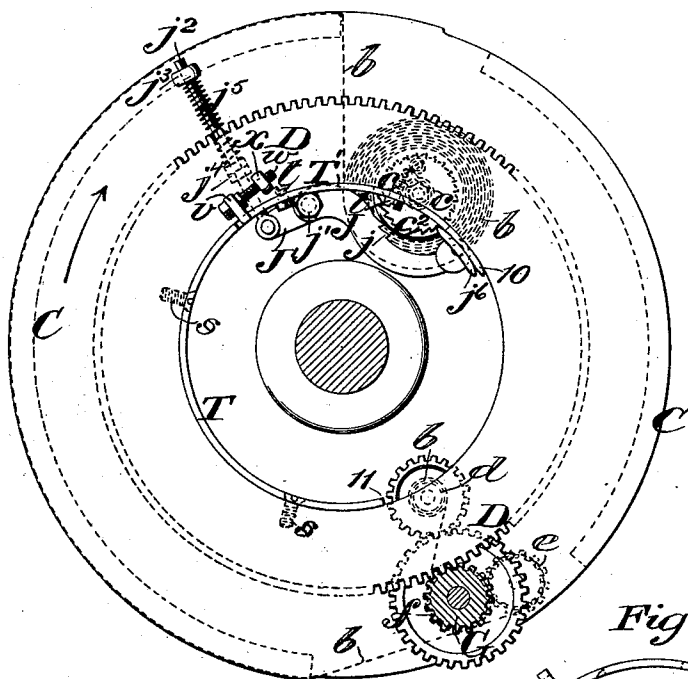


Fig. 3.

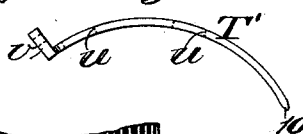
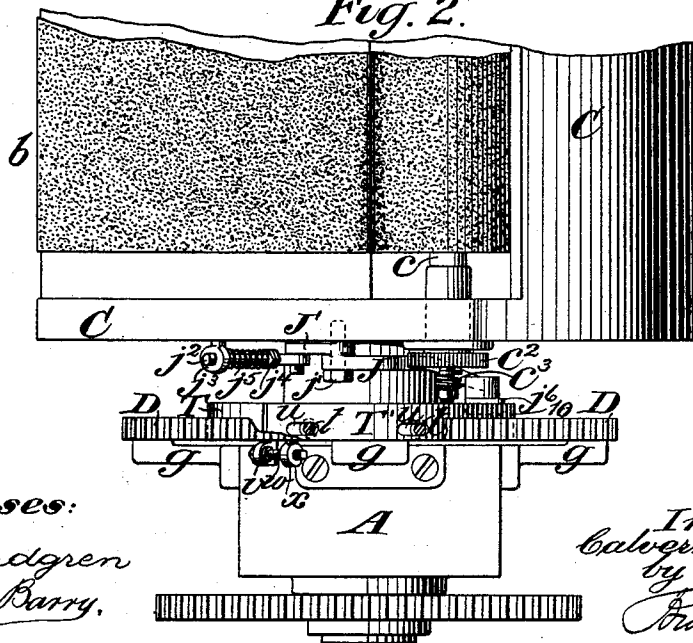


Fig. 2.



Witnesses:

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CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

OFFSET MECHANISM FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 484,531, dated October 18, 1892.

Application filed March 9, 1892. Serial No. 424,285. (No model.)

To all whom it may concern:

Be it known that I, CALVERT B. COTTRELL, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Offset Mechanism for Printing-Machines, of which the following is a specification.

This invention is an improvement in the offset mechanism which is the subject of my United States Letters Patent, No. 467,637, dated January 26, 1892, the purpose of which mechanism is to effect the shifting of a tympan on an impression-cylinder by unrolling it from one and rolling it upon another of two rollers arranged within the said cylinder, the first-mentioned of such rollers being called the "delivery-rollers" and the other the "take-up roller," and the said delivery-roller having applied to it a spring by which a proper tension is applied to the tympan. According to that invention the unlocking of the delivery-roller to permit the unrolling of the clean tympan therefrom is in part controlled and the relocking of the said roller when a sufficient length of tympan has been unrolled therefrom is entirely controlled by means of a non-rotating interrupted circular track concentric with the cylinder, a pawl by which said roller is locked, having attached to it a sliding piece which runs outside the said track when the pawl keeps the roller locked and runs inside of the said track while the pawl leaves the roller unlocked. The interrupted circular track described in that patent is made in one piece and the whole length of it is fixed and there is no provision for compensating for the reduction of the diameter of the roll of the tympan on the said roller consequent upon the unwinding of the tympan therefrom.

The object of this improvement is to so compensate for this reduction as both to equalize at all times the tension produced upon the tympan by the aforesaid spring and to permit the greater movement of the said roller on its axis, which is necessary to let off a given length of tympan as the diameter of the roll upon it diminishes; and to these ends the said improvement consists in the construction of the said circular track of two parts and the means for its adjustment, as hereinafter described and claimed.

Figure 1 represents an end view of the impression-cylinder of a printing-machine and of parts attached and contiguous thereto necessary to illustrate my invention. Fig. 2 is a top view of one end of the cylinder and of parts of the machine necessary to illustrate my invention. Fig. 3 is a side view of one of the two parts of the circular track.

Similar letters of reference designate corresponding parts in all the figures.

A designates a part of one of the journal-boxes for the impression-cylinder C.

b is the tympan.

c is the delivery-roller, d the take-up roller, and e f the feed-rollers.

D is the spur-gear concentric with the cylinder, attached by brackets g to the journal-box A, and gearing with a pinion G on the feed-roller f for the purpose of producing the shifting of the tympan by the rotation of the cylinder at such times as may be desirable. This gear D, having no rotary motion and only rising and falling with the cylinder, will be hereinafter referred to as the "stationary gear."

J J' designate the locking-pawl for locking the delivery-roller (represented as a lever) fulcrumed on the stud j', secured to one head of the cylinder C, one arm of the said lever being furnished with teeth j j to engage with the teeth of the ratchet-wheel c², which is fitted loosely to the shaft or journal of the delivery-roller c and connected with the said delivery-roller by the coiled spring c³, one end of which is secured to the said shaft or journal and the other end to the ratchet-wheel, the said spring when the ratchet-wheel is locked having a tendency to turn the delivery-roller in a direction to wind up and produce tension on the tympan. The other arm J' of the said lever has connected with it a rod j³, which passes through the guide j³, secured in the cylinder-head, between which guide and the nut or collar j⁴ on the said rod there is coiled on the said rod the spring j⁵, which serves to throw the teeth j of the pawl into engagement with the ratchet-wheel c² when permitted to do so.

T T' designate the non-rotating interrupted circular track for controlling the operation of the locking-pawl J J', and j⁶ is the sliding piece attached to the said pawl for running

on the outside or inside of the said circular track, as required, according as the delivery-roller is locked or unlocked. In Fig. 1 the said sliding piece is represented as running on the inside of the track and about to pass by the end 10 of the interruption 10 11 of the said track and permit the teeth of the pawl to engage with the ratchet-wheel and lock the roller.

10 The parts thus far referred to, so far as they have been described, are the same as the corresponding parts in my hereinbefore-mentioned Letters Patent.

I will now proceed to describe the improvement in detail. The non-rotating interrupted circular track T T' is made of two pieces T and T'. These are both represented as fitted to the interior of the open center of the stationary gear D, which thus constitutes a support for the said track concentric with the cylinder. The piece T (represented as constituting the greater portion of the length of the said track) is firmly secured to the said interior of the gear by screws s s, and the piece T' is secured to the said interior by screws t t in such manner as to permit the said piece T' to be moved forward and backward from and toward the piece T, or, in other words, more or less forward in the direction of the rotation of the cylinder C, which is indicated by the arrow in Fig. 1, the provision for this movement being made by slots u u in the piece T', the screws t t passing through the said slots and screwing into the gear D. The adjustable portion of the said track is provided with a laterally-projecting lug v, through which is inserted a screw w, which works in a nut x, which is rigidly attached to the support of the track—that is to say, in this example to the stationary gear D. The screw w is represented as confined longitudinally in the lug v, but free to turn therein, so that by turning it it operates in the nut to move the movable part T' of the track from and toward the part T, and so to adjust the point 10 of the track more or less forward in the direction of the revolution of the cylinder, so that the sliding piece will drop off the point 10 earlier or later in the rotation of the cylinder.

50 The operation is as follows: When a new tympan is put in the cylinder and the diameter of the roll on the delivery-roller is the largest, the adjustable part or member T' of the non-rotating track is brought close up to the part or member T; but from time to time as the tympan is unwound from the said roller and the diameter of the roll thereon diminishes, and consequently a greater move-

ment of the said roller is necessary to let off 60 or deliver a given length of tympan and a less leverage is produced by the pull of the tympan on the spring, the pressman or attendant turns the screw in a direction to set the member T' of the track and the end 10 thereof farther forward. The effect of this is that the sliding piece j⁶ of the locking-pawl escapes later and later from the said end 10 and out from the interruption or opening of the track and leaves the delivery-roller longer 70 unlocked and permits it to be turned the greater distance necessary. The roller itself does not, however, stop as the pawl first engages with and stops the ratchet-wheel c², but continues moving and winding up the spring c³, by which the tension of the tympan is controlled, and as the pawl escapes later and later from the end 10 of the track it winds up the spring less and less, so that its tension is proportionate to the leverage of the tympan 80 on the roller. The adjustment of the part T' of the track by the screw w may be performed while the press is in motion, and the accuracy of the adjustment may be facilitated by providing a scale on the gear D to determine the position of the point 10, according to the size 85 of the roll.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the impression-cylinder, a tympan-delivery roller therein, and a pawl attached to the said cylinder for locking the said roller, of a non-rotating interrupted circular track made in two parts, one of which is adjustable relatively to the other 95 in the direction of the rotation of the cylinder for holding the said pawl out of engagement with the cylinder during a greater or less portion of the rotation of the latter, substantially as and for the purpose herein set 100 forth.

2. The combination, with the impression-cylinder, a tympan-delivery roller in said cylinder, and a pawl attached to said cylinder for locking said roller, of an interrupted circular track for said pawl made in two parts, a support for said track upon which one of the said parts is secured firmly and the other is adjustable, and a screw and nut, one of which is attached to said support and the other 110 to said movable part of said track for adjusting the latter in the direction of the rotation of the cylinder, substantially as and for the purpose herein set forth.

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Witnesses:

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