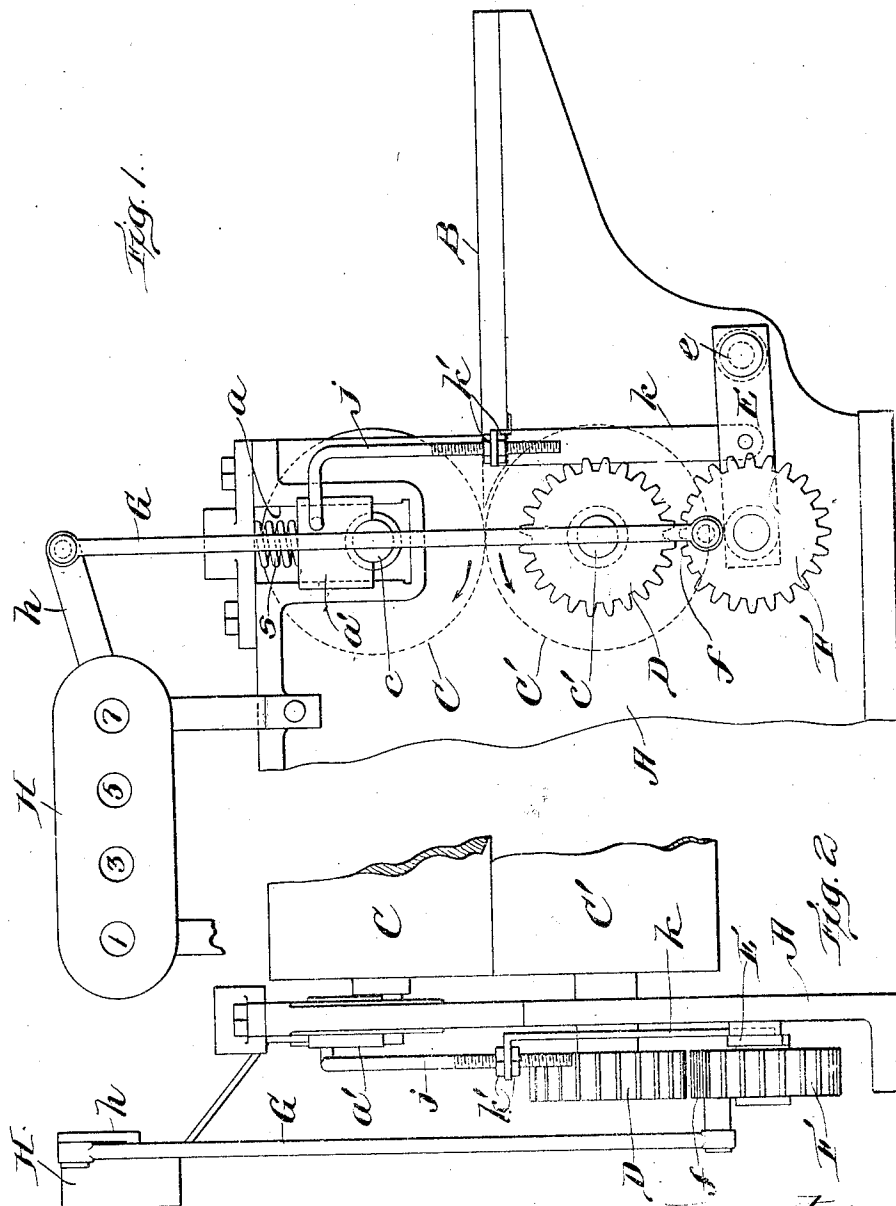


F. M. BLANCHARD.
COUNTING ATTACHMENT FOR BOX MACHINES.
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1,054,165.



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UNITED STATES PATENT OFFICE.

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COUNTING ATTACHMENT FOR BOX-MACHINES.

1,054,165.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRED M. BLANCHARD, a citizen of the United States, and resident of Danvers, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Counting Attachments for Box-Machines, of which the following is a specification.

This invention relates to a counter controlling mechanism, and more particularly to a counting attachment for box machines of the kind in which feed rolls or presser rolls are employed, between which the box blanks are passed to be folded and glued. In such machines the rolls are journaled with provision for slight relative movement of separation, and each time a box blank passes between the rolls, the rolls are separated thereby.

The present invention involves the utilization of such movement of separation for the purpose of actuating the counter, to count and record the number of box blanks passing through the machine.

In the accompanying drawings, which illustrate one embodiment of the invention,—Figure 1 is a side elevation showing such parts of a box machine of ordinary construction as are intimately associated with my invention, and also showing in side elevation the counting attachment; and Fig. 2 is a front elevation of the parts shown in Fig. 1 viewed from the right of Fig. 1.

Referring to the drawings, A represents the frame of a box machine, and B the table from which the box blanks are fed between the rolls. The frame A is provided with a vertically arranged slideway *a* in which is mounted a sliding block or journal box *a'*, in which is journaled one end of shaft *c* of a feed roll or presser roll C. A spring *s* in the slideway *a* normally urges the journal box *a'* downward, and yieldingly presses the roll C toward the other roll.

C' is the lower presser roll or feed roll, whose shaft *c'* is journaled in fixed bearings in the frame A. The rolls C and C' are normally in yielding contact in the positions shown in the drawings. It will be understood that there may be a series of rolls similar to rolls C and C', between which the box blanks pass, but one pair of such rolls is sufficient for an understanding of the present invention.

D is a gear wheel fixed to the shaft *c'* of

the lower or fixed roll C'. A swinging arm E is pivoted to the frame A at *e*, and mounted on the free end of the arm E is the counter-actuating gear F. A segment of the gear F opposite the gear D is provided with a series of teeth *f* which are shorter than the teeth about the rest of the periphery of the gear F, and are normally out of engagement with the teeth of gear D as shown in the drawings. The rest of the gear teeth of gear F are of such a length that they will engage the gear teeth of the gear D in all positions which the gear F assumes when operated as hereinafter described.

The gear F is connected by a connecting rod G with an arm or crank *h*, which operates the counter mounted on the frame of the machine and conventionally shown at H. The journal box *a'* is connected with the swinging arm E by a downwardly extending rod *j* and a link *k* pivoted to arm E. Provision is made for adjusting the length of the connection *j—k* by means of adjusting nuts *k'* into which the lower end of rod *j* is threaded, one nut being secured at each side of an ear projecting from link *k*.

It will be understood that the rolls C and C' are continuously driven in the direction indicated by the arrows, and that when no box blank or similar article is passing between them, they will be in contact with each other as shown in the drawings. The other parts of the apparatus will also then be in the positions shown in the drawings, with the short gear teeth *f* opposite the teeth of gear D and out of engagement therewith. If, now, a box blank is passed between the rolls C and C', it will cause the rolls to separate slightly by lifting the upper roll C which is journaled on the movable axis. The movement of roll C will lift the journal block *a'*, thereby lifting arm E through the connection *j—k*, and moving the short gear teeth *f* into mesh with the teeth of gear D. Gear D, which is being continuously driven with roll C', will thereupon rotate gear F, which in turning pulls down connecting rod G and actuates the counter once at each rotation of the gear F. As the longer gear teeth of the gear F are sufficient in length to engage the gear teeth of the gear D in the lowermost position of the gear F, that is, when the rolls C and C' are in contact, one complete rotation of the gear F is insured, notwithstanding the box blank passes

clear of the rolls C and C', thereby permitting the roll C again to move down into contact with the roll C' and the gear F to swing away from gear D, before the rotation of gear F is completed. When the shorter gear teeth f again come opposite the teeth of gear D, the rolls C and C' having again come into contact by that time, the rotation of the gear F will again be stopped, and consequently the counter will not again be actuated until another box blank causes the rolls again to separate and the short gear teeth f again to be brought into engagement with the gear D.

I claim:

1. In a machine of the character described, a pair of rolls mounted on relatively movable axes, a counter, a gear carried by one of said rolls, a counter-actuating gear normally disengaged from the gear on the roll, and mechanism controlled by the movement of separation of said rolls adapted to move said gears into engagement and thereby to operate said counter.

2. In a machine of the character described, a pair of rolls mounted on relatively movable axes, a counter, a gear carried by one of said rolls, a counter-actuating gear, one of said gears having a segment provided with shorter gear teeth than those on the rest of the periphery of such gear, said shorter gear teeth being normally opposed to and disengaged from the other gear when the rolls are in contact, and the longer gear teeth being adapted to engage the opposed gear in all relative positions of said rolls, and mechanism actuated by the movement of separation of said rolls adapted to engage said shorter gear teeth with the teeth of the other gear and thereby operate said counter.

3. In a machine of the character described, a roll mounted on a movable axis, a counter, a continuously operated gear, a counter-actuating gear having a segment which is provided with gear teeth shorter than those on the rest of the periphery of such gear, said shorter gear teeth being normally opposite and disengaged from the other gear when said roll is in normal position, and the longer of said gear teeth adapted to engage the teeth of the opposed

gear in all positions of said movable roll, and mechanism actuated by the displacement of said roll to move said counter-actuating gear and bring said shorter gear teeth into mesh with said continuously operated gear and thereby operate the said counter.

4. In a machine of the character described, a pair of rolls, one mounted on a fixed axis and the other mounted on a movable axis, a counter, a gear carried by the roll on the fixed axis, a counter-actuating gear mounted on a movable support and having a segment provided with shorter gear teeth than those on the rest of the periphery, the shorter teeth being normally opposed to and disengaged from the other gear when the rolls are in contact, and the longer gear teeth adapted to engage the opposed gear in all relative positions of said rolls, and a connection between the movable roll and the counter-actuating gear adapted to move the latter to bring the shorter teeth thereof into engagement with the opposed gear when the movable roll separates from the fixed roll.

5. In a machine of the character described, a pair of rolls, one of which is mounted on a fixed axis, sideways and sliding journals in which the other roll is mounted, a counter, a gear carried by the roll on the fixed axis, a counter actuating gear mounted on a movable support and having a segment provided with shorter gear teeth than those on the rest of its periphery, the shorter teeth being normally opposed to and disengaged from the other gear when the rolls are in contact, and the longer gear teeth adapted to engage the opposed gear in all relative positions of the rolls, and an adjustable connection between said sliding journal and said movable support carrying the counter-actuating gear adapted to swing the latter so as to bring said shorter teeth into engagement with the opposed gear when the movable roll separates from the fixed roll.

Signed by me at Boston, Massachusetts, this 16th day of August, 1912.

FRED M. BLANCHARD.

Witnesses:

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