J. H. HASTINGS.

PRINTING MACHINE.

APPLICATION FILED JUNE 23, 1911.

1,045,787.

Patented Nov. 26, 1912.

Fig. 1.

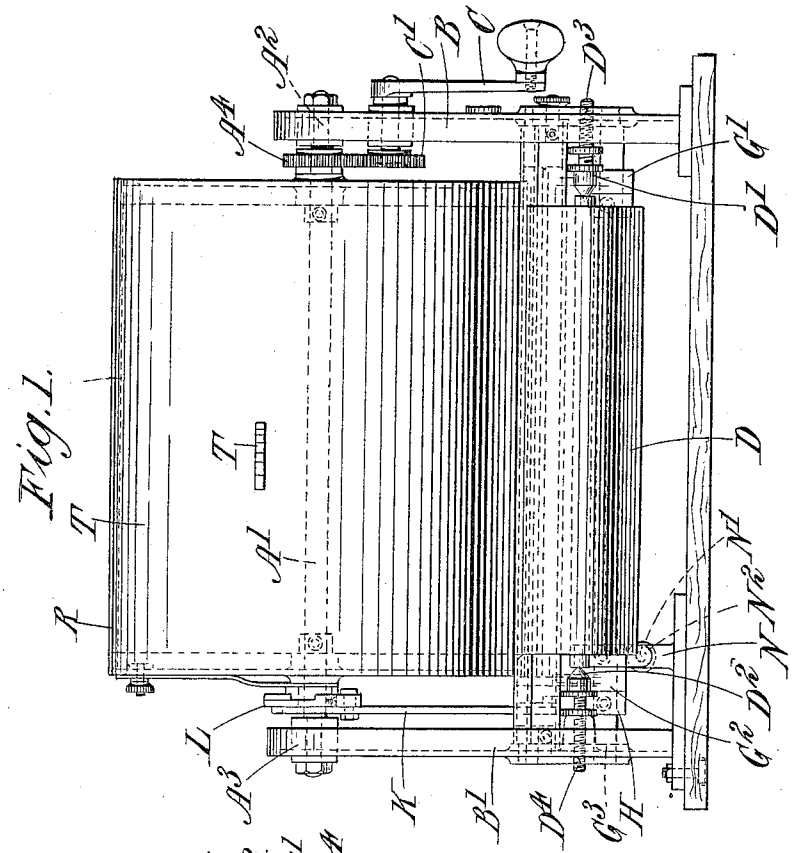
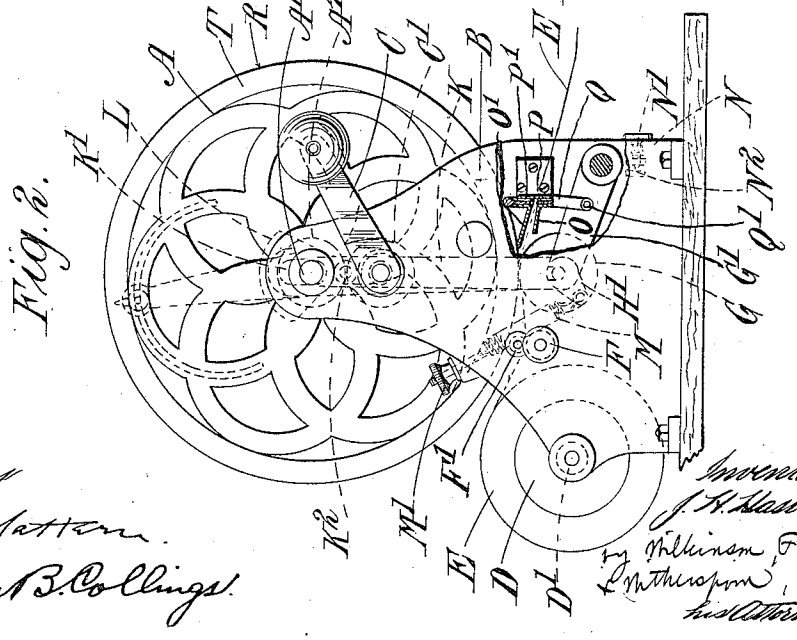


Fig. 2.



Witnesses

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JAMES HAROLD HASTINGS, OF YOKOHAMA, JAPAN.

PRINTING-MACHINE.

1,045,787. Specification of Letters Patent. Patented Nov. 26, 1912.

Application filed June 23, 1911. Serial No. 634,919.

To all whom it may concern:

Be it known that I, JAMES HAROLD HASTINGS, a subject of the King of England, residing at Yokohama, Japan, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

This invention relates to improvements in printing machines or duplicators and the like and has particular reference to the machine known as the "Crown" duplicator.

The present invention has for its object to provide an appliance with which large numbers of printed copies may be readily produced in typewritten style.

According to this invention a duplicator may be constructed wherein the printing is performed through an inked ribbon from a stereotype form removably carried upon a rotatable drum. The duplicator comprises the combination of these parts and an impression roller adjustably arranged to press the paper to be printed up against the type with the inked ribbon interposed. The impression roller is periodically brought into action by means of a spring and taken out of action by means of a cam in such a way as to press the paper to be printed upon into contact with type as described and at the same time bringing about the intermittent feeding forward of the paper by the frictional contact between it and the rotating drum. Cutting off knives actuated simultaneously with the movement of the impression roller are arranged to divide the paper into any required size.

In the accompanying drawings—Figure 1 is a front elevation of a duplicator constructed according to this invention; Fig. 2 is an end elevation of the duplicator showing the paper in its operative position.

These drawings illustrate a drum A mounted on a spindle A′ journaled at A^2, A^3 in two end-frames B, B′ and rotated by means of a handle C or other suitable device through a spur wheel C′ meshing with a pinion A^4 secured to the spindle A′. Beneath the drum A, a paper carrier or spool D is removably mounted on pivot points D′, D^2 secured at D^3, D^4 into and projecting from the frames B, B′. The paper E from the roll carried by the spool D then passes between guide rollers F, F′ and thence between the drum A and an impression roller G. This roller G is supported so that it can freely revolve in arms G′, G^2 which can swing together upon a pivot G^3. On the same spindle G^3 there is also secured a lever H connected at its outer end to a rod K guided by the slot K′ and the drum spindle A′ passing therethrough. A cam roller K^2 on the rod K receives the thrust of a cam L fixed upon and rotating with the spindle A′. A spring M is attached to the lever H at H′ and is adjustably held at the other end M′ to the frame of the machine. At N the position of the arms G′, G^2 and hence of the roller G is controlled by the screw N′, and the lug N^2 secured to the spindle G^3. The paper after passing between the roller G and drum A is then embraced by guides O, O′ which lead the paper to the knives P, P′, the upper of which is reciprocated in relation to the lower one by the link Q connected to the lever H at Q′. The type indicated at T upon the drum is surrounded by an inked ribbon R supported upon the drum in any suitable manner.

When the handle C of the machine is turned and with it the spur wheel C′ the pinion A^4 is brought into action, which latter, secured to the spindle A′ rotates the drum A and at the same time the cam L, also fixed to the spindle. During its downward motion the cam L pushes down the rod K through the medium of the cam roller K^2, and in so doing, acting upon the lever H turns the spindle G^3, thus depressing the arms G′, G^2 which take with them the impression roller G. The roller G is normally held up to the drum A by the spring M, so that the cam L, in course of its rotation now moving in an upward direction, permits the spring M to lift the roller G by pulling up the lever H. The inked ribbon surrounding the forms upon the drum is, it will be seen, interposed between the paper sheet E and the roller G. When then the spring M draws the roller up, the paper is pressed between the latter and the ribbon, thereby receiving an impression of the printed characters under the ribbon. At the same time, the frictional contact between the drum and the paper sheet causes the sheet to be drawn forward and to thus receive the impression of the subsequent portions of the form up to the point where the cam L once more returning in a downward direction pushes the impression roller away from the drum. At this stage the paper is cut off by the cutting off knives P, P′, the upper of which is

moved toward the lower one for the cutting operation, by the link Q connected at Q′ to the lever H, controlled as stated by the cam L and spring M. The possible motion of the arms G′, G² is adjusted by the screw N acting upon the lug N² fixed to the spindle G³, while the tension of the spring M is adjusted by turning the screw M′ to vary the pressure of the roller upon the type form.

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

1. In a printing machine, the combination of a rotatable printing drum, an impression roller, arms shiftably supporting said roller, a cutting device operatively connected to said arms and means movable with the drum for shifting said arms.

2. In a printing machine, the combination of a shiftable printing drum, a spindle, arms carried thereby, an impression roller journaled in said arms, a crank on said spindle, a rod pivotally connected to said crank, a cutting device operatively connected to said arms, and means movable with the drum for actuating said rod to force the impression roller away from the drum.

3. In a printing machine, the combination of a rotatable printing drum, a spindle, arms carried thereby, an impression roller journaled in said arms, a crank on said spindle, a rod pivotally connected to said crank, a cutting device operatively connected to said arms, means for normally maintaining said roller in operative position, and means movable with the drum for actuating said rod to force the impression roller away from the drum.

4. In a printing machine, the combination of a rotatable printing drum, an impression roller, shiftable supports therefor, a guide, coöperating knives carried by said guide and shiftable supports respectively, and means movable with the drum for actuating said shiftable supports.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES HAROLD HASTINGS.

Witnesses:
C. B. BERNARD,
L. C. SHARMAN.