April 27, 1926. 1,582,390

A. B. EVANS

PRINTING MACHINE

Filed Jan. 18, 1923 2 Sheets-Sheet 1

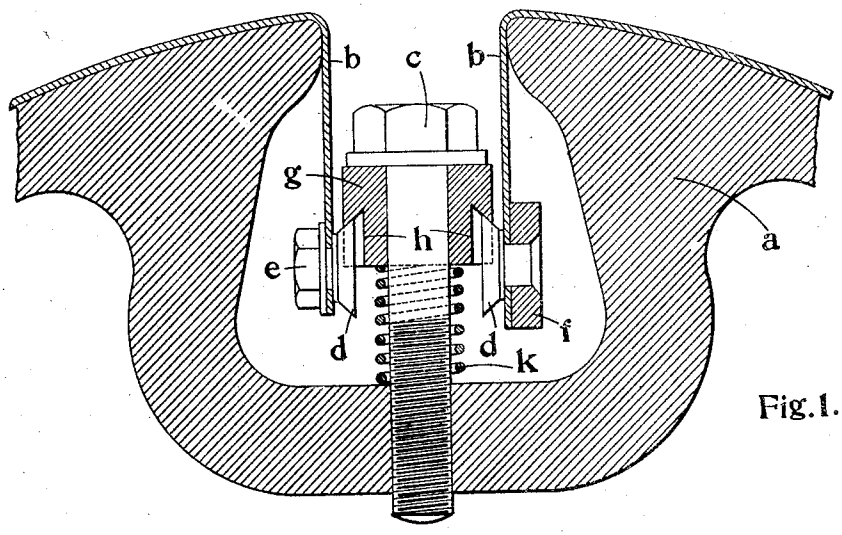


Fig.1.

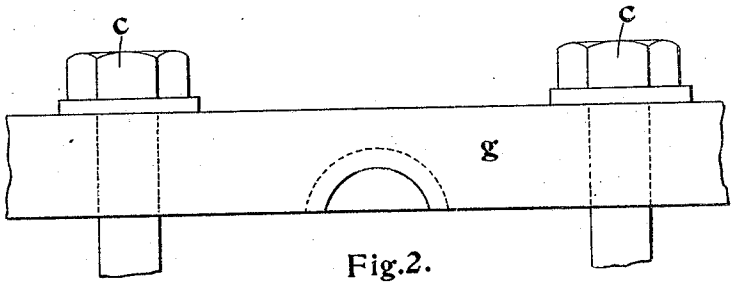


Fig.2.

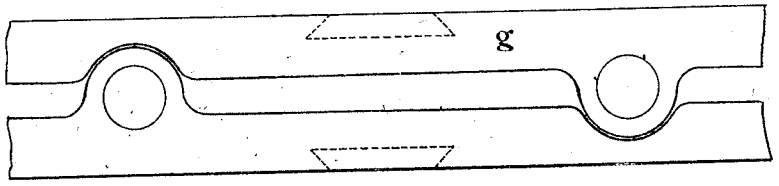


Fig.3.

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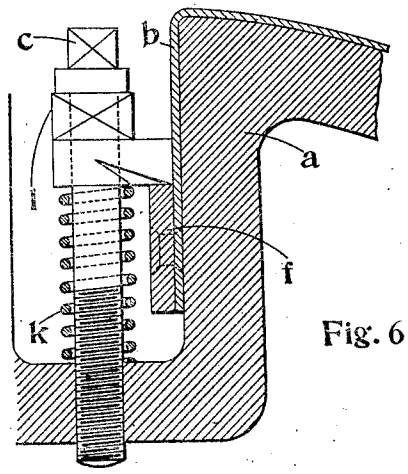


Fig. 6.

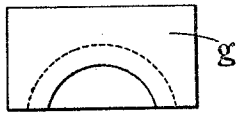


Fig. 4.

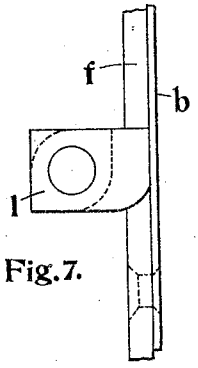


Fig. 7.

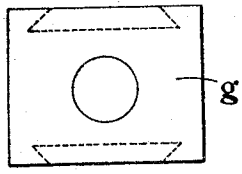


Fig. 5.

Fig. 8.



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UNITED STATES PATENT OFFICE.

ARTHUR BURROUGHES EVANS, OF LEEDS, ENGLAND.

PRINTING MACHINE.

Application filed January 18, 1923. Serial No. 613,409.

To all whom it may concern:

Be it known that I, ARTHUR BURROUGHES EVANS, a subject of the King of Great Britain and Ireland, residing at 7 Woodland Grove, Leeds, England, have invented certain new and useful Improvements in Printing Machines, of which the following is a specification.

In printing machines in which it is necessary to fasten plates, blankets, or the like with plane surfaces, around the periphery of a cylinder, there is, in the case of a small gap in the cylinder, difficulty in drawing the plate or the like taut upon the periphery of the cylinder, and in register with its required position in the machine.

According to the invention means are provided for mounting a flexible peripheral element such as a plate, blanket or the like upon a cylinder having a longitudinal gap, the said means comprising in combination fittings such as studs or bars attached to the inwardly diverted ends of the flexible peripheral element, which are inserted within the said gap, the said fittings protruding at or near the ends of the said flexible peripheral element in oppositely disposed positions within the gap, and tensioning means for the said flexible peripheral element disposed between the said respective fittings and adjustable in a plane passing through the axis of the cylinder, said tensioning means being adapted to engage the said fittings by contact without positive connection and to disengage on movement of the said tensioning means.

The invention comprises the features hereinafter described.

The invention is illustrated by way of example in the accompanying drawings in which—

Figure 1 is a sectional end elevation of a cylinder at the part at which the gap is provided and showing means for carrying out the invention.

Figure 2 is a detailed elevation of the bar shown in Figure 1.

Figure 3 is a plan corresponding to Figure 2 but shewing two bars instead of one, for engaging the respective ends of the plate or blanket.

Figure 4 is an elevation of a sectional form of the bar.

Figure 5 is a plan corresponding to Figure 4.

Figure 6 is a sectional elevation similar to Figure 1 but showing a constructional modification.

Figure 7 is a detail plan corresponding to Figure 6, and

Figure 8 is a plan alternative to that illustrated in Figure 7.

In the drawings *a* shows in section a part of a cylinder at the position at which the longitudinal gap is formed. *b* are plates or blankets used for printing. *c* are screws used for tensioning the plates or blankets in the manner hereinafter described and are disposed in a plane passing through the axis of the cylinder. Holes are drilled or punched in the plates or blankets *b* to a standard gauge and through these holes is inserted as illustrated on the left hand side of Figure 1 a stud or bolt *d* fastened by a nut *e*. As the head of the stud or bolt *d* is tapered it engages with a corresponding and substantially semi-circular and under-cut recess *h* in the bar *g* in the manner of a hook.

According to a modification illustrated on the right hand side of Figure 1, the stud or bolt *d* may be riveted through the plate or blanket *b* to a longitudinal stiffening piece *f* which reinforces the plate or blanket near its edge.

The bar *g* in the manner hereinbefore described is provided with recesses *h* at each side and is supported upon the cylinder by the screws *c* within the gap.

It will be understood that the recesses *h* are in register with the studs or bolt heads *d*. Upon the lower ends of each of the screws *c*, and between the lower face of the bar *g* and the cylinder, a spiral spring *k* is mounted by which the bars *g* are thus supported upon the screw *c* when not engaged with the studs or bolts *d*.

It will be understood that the loose edges of the plate or blanket *e* are inserted in the gap of the cylinder in such manner that the heads of the studs or bolts *d* engage with the recesses *h* and the bar *g* is thereupon caused to tighten the plate or blanket *b* by the adjustment of the screws *c*.

In Figure 3 is indicated a method of using two bars, one engaging the front edge and one the rear edge of the plate or blanket *b*.

As illustrated in Figure 3 the respective bars are formed alternately with bosses on

the respective sides for the reception of the tensioning screws which are arranged in alignment, the bosses in one bar being accommodated in recesses in the other, so that thus the bars may be disposed in close relation. By such means a very narrow gap may be provided in a cylinder with satisfactory means for independently tightening the plate or blanket at its respective ends.

In Figures 6 and 7 a stiffening piece *f* is attached to the plate or blanket *b* near its edge by being riveted through the standard holes in the plate or blanket *b* on the face opposite to that according to the modification at the right hand side of Figure 1.

In such case the ends of the stiffening pieces *f* are registered to the holes in the plate or blanket *b* and slide between the end walls in the gap of the cylinder *a*.

In the modification illustrated in Figures 6 and 7 instead of providing a bar, a contact block *l* is provided which can be rotated upon the screw *c*. Its lower part is formed with a cam surface which engages with the top face of the stiffening piece or bar *f*. By such means the rotation of the contact block *l* through 90° quickly effects the tensioning of the plate or blanket *b*. The contact block *l* at its upper part may be provided with a boss of a square shape convenient for engagement by means of a spanner or other tool.

It will thus be understood that the operation involved in the use of the constructional modification illustrated in Figures 6 and 7 is similar to that involved in the constructional modification illustrated in Figure 1.

Figure 8 at *m* illustrates a modification in form of the contact block *l* which is provided with cam surfaces at opposite positions so that thus by rotation in one direction the stiffening pieces or bars *f* at the respective sides of the gap are simultaneously acted upon for applying tension on the plate or blanket *b*.

It will be understood that in each of the constructions described, the register of the design on the plate or blanket *b* to the cylinder and the machine in which this cylinder is placed is obtained by means of the holes in the plates or blankets *b*.

I claim:

1. In printing machines, means for mounting a flexible peripheral member such as a plate, upon a cylinder having a longitudinal gap, comprising in combination, elements within the said gap, carried at the respective inwardly diverted ends of the said flexible peripheral member, the said elements protruding respectively from the ends of the said flexible peripheral member at the inner face and in oppositely disposed positions within the said gap, and tensioning means for the said flexible peripheral member disposed between the said respective elements, and adjustable in a plane passing approximately through the axis of the cylinder, said tensioning means comprising studs carried upon the cylinder within the said gap in a radial position and an engaging member mounted upon the said studs, the said engaging member and the same elements being adapted to engage by contact only at a position above the said elements, without positive connection and being adapted also to disengage on the outward movement of the said engaging member, substantially as described.

2. In printing machines, means for mounting a flexible peripheral member, such as a plate, upon a cylinder having a longitudinal gap, comprising in combination, a series of separate elements positioned upon the respective inwardly diverted ends of the flexible peripheral member within the said gap, the said elements being inserted within holes formed in the inwardly diverted ends aforesaid, the said elements protruding respectively from the ends of the said flexible peripheral member in oppositely disposed positions within the said gap, and tensioning means for the said flexible peripheral member disposed between the said respective elements and adjustable in a plane passing approximately through the axis of the cylinder, said tensioning means engaging the said elements by contact without positive connection and disengaging on the movement of the said tensioning means, substantially as described.

3. In printing machines, means for mounting a flexible peripheral member, such as a plate, upon a cylinder having a longitudinal gap, comprising in combination, elements such as studs carried at the inwardly diverted ends of the said flexible peripheral member within the said gap, the said elements protruding respectively from the ends of the said flexible peripheral member in oppositely disposed positions within the said gap, tensioning members for the said flexible peripheral member disposed between the said respective elements, and adjustable in a plane passing approximately through the axis of the cylinder, radially disposed adjusting screws carrying the said tensioning members and springs supporting the said tensioning members substantially as described.

ARTHUR BURROUGHES EVANS.