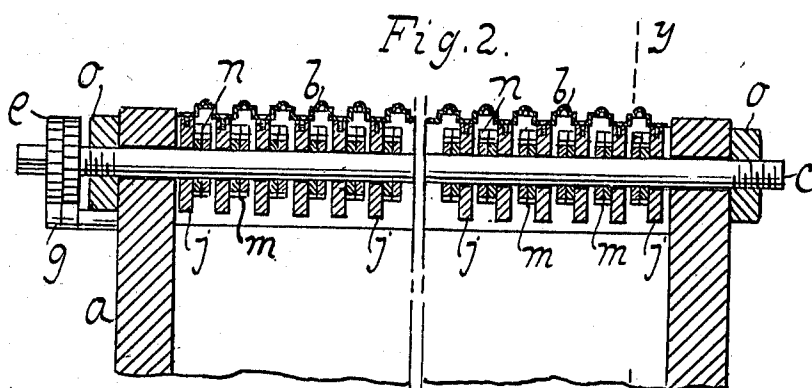
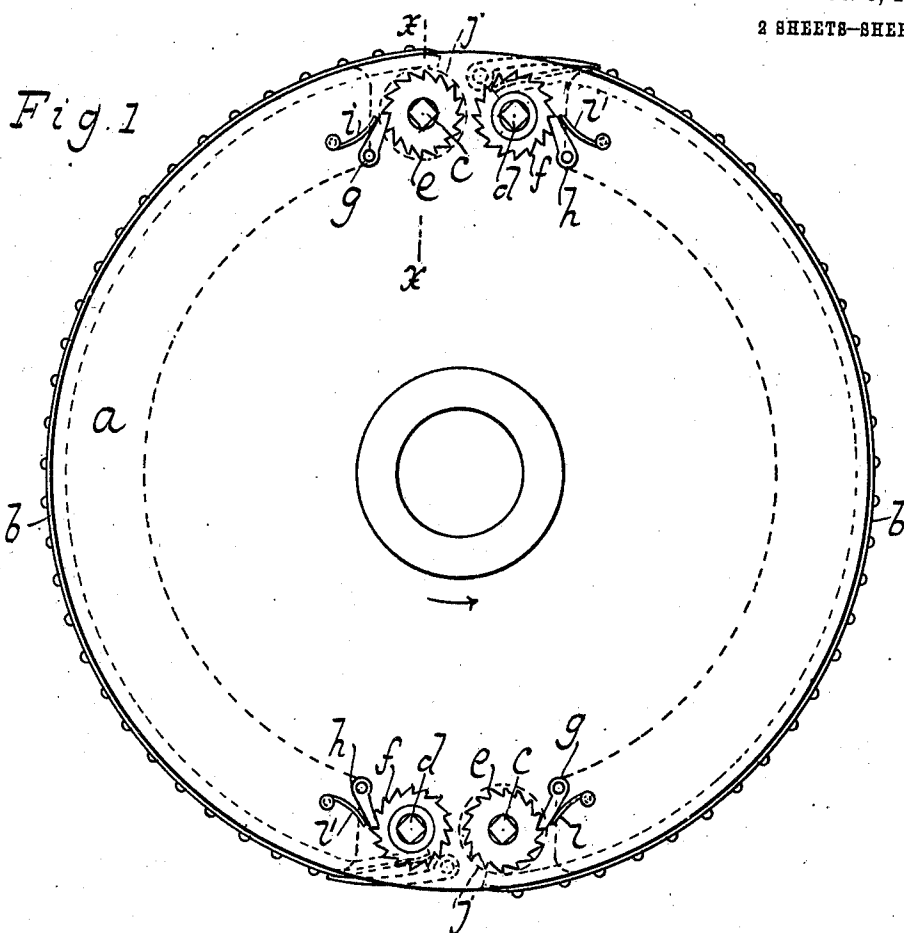


W. B. WAIT.
 DEVICE FOR AUTOMATICALLY ADJUSTING PLATES.
 APPLICATION FILED AUG. 19, 1910.

978,081.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 1.



Witnesses:
 William Miller
 Christian Almstedt

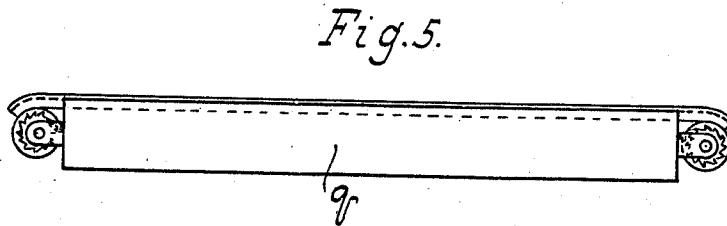
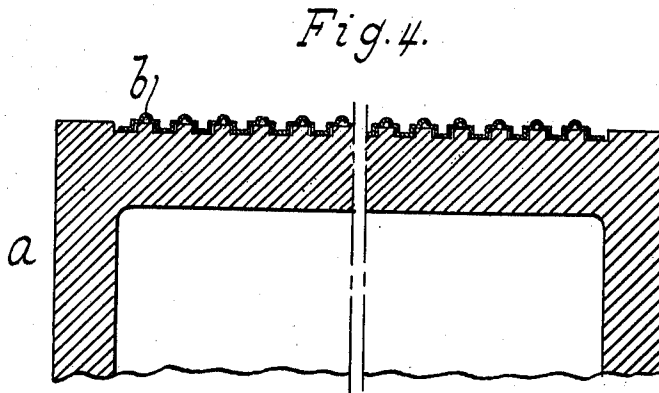
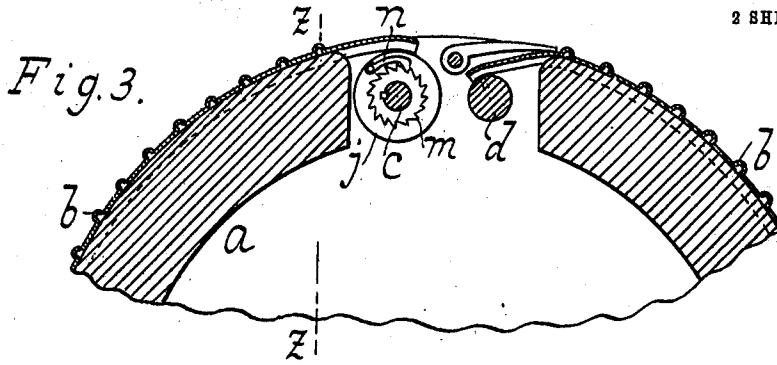
Inventor
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 By his Attorneys
 Hayfalloland.

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UNITED STATES PATENT OFFICE.

WILLIAM B. WAIT, OF NEW YORK, N. Y.

DEVICE FOR AUTOMATICALLY ADJUSTING PLATES.

978,081.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed August 19, 1910. Serial No. 578,035.

To all whom it may concern:

Be it known that I, WILLIAM B. WAIT, a citizen of the United States, residing at the city, county, and State of New York, have invented new and useful Improvements in Devices for Automatically Adjusting Plates, of which the following is a specification.

This invention relates to improvements in devices for fastening and adjusting plates or sheets to the cylinders or beds of embossing or printing machines, and it consists in the novel method of automatically taking up the stretch of the plates while the cylinder or bed is in operation. These plates are made of thin metal such as brass or aluminum, which in process of embossing or of printing, have a tendency to stretch, and if this tensible movement of the plates is not taken up the plates will buckle and crease, thus preventing proper alinement of the embossed or printed matter.

The object of this invention is to overcome this tensible movement of the plate, and it provides means whereby the stretch of the whole or of one or more portions of the plate is automatically taken up. This is accomplished by means of a self-adjusting shaft, provided with a series of collars, mounted on the shaft.

This invention is particularly adapted for embossed printing of literature for reading by the blind.

In the accompanying drawings: Figure 1, represents a side elevation of a cylinder embodying this invention. Fig. 2, is a section along the line *x x* Fig. 1. Fig. 3, is a vertical section along the line *y y* Fig. 2. Fig. 4, in a section along the line *z z* Fig. 3. Fig. 5, shows the device applied to the form of a press.

In this drawing the letter *a* designates a cylinder which is preferably provided with elevations and depressions extending around the circumference thereof. This cylinder carries one or more embossed plates *b* and these plates are provided with elevations and depressions to fit onto the corresponding elevations and into the depressions in the cylinder.

The cylinder *a* is provided with the customary openings in which are located the shafts *c* and *d*. These shafts have their bearings in the side walls of the cylinder *a* and the ends of the shafts are angular so that

they may be turned by means of a wrench or other implement.

The shafts *c* are provided with compound ratchets *e* which are engaged by one or more pawls *g*. Springs *i* hold the pawls into engagement with the teeth of the ratchets. These ratchets *e* combined with the pawls prevent rearward movement of the shaft. The shaft *d* has keyed to it a ratchet *f* and this ratchet is engaged by a pawl *h* and held into contact with the teeth of the ratchet by means of a spring *i*.

Mounted on the shaft *c* is a series of collars *j* to which is fastened the tail end of the embossing or printing plate *b*.

To the shaft *d* is secured the head of the embossed sheet *b*. The head of the sheet may be fastened directly to the shaft but it may also be provided with one or more of the collars as described.

The shaft *c* has fastened thereto a series of compound ratchets *m* which co-act with a series of pawls *n* pivoted to each of the collars *j*. The tail of the plate *b* is secured to the collars *j*, and these collars serve to take up the elongation of the embossed plate *b* caused by the impressions and at the same time hold the plate firmly and facilitating the initial adjustment of the plate by the pressman.

The shaft *c* can be adjusted longitudinally by means of nuts *o*, threaded on to the shaft and by which the shaft and the plate can be moved one way or the other for the purpose of adjustment.

It will be seen that the collars *j* to which the plate *b* is fastened will move with the shaft when the same is adjusted lengthwise.

As shown in Fig. 5, the invention is applied to a form *q*, adapted for use on the bed of an ordinary printing press.

The device may be applied to ordinary plates without any elevations or depressions and can be used for printing cylinders or the flat forms of printing or embossing presses. The device may also be applied to fasten rubber sheets or jackets around the periphery of a cylinder.

The operation of the device is as follows: One end of the embossed plate *b* is fastened to the shaft *d* or to the collars mounted on the shaft while the other end of the plate is fastened to the oscillating collars *j*. The plate is then tensioned by revolving the shaft *d* which operates the ratchets *f*, the pawls *h*

prevent rearward movement of the ratchets and the plate is thus firmly secured to the shafts.

It will be understood that when the device is in operation the stretching movement of the plate starts from the shaft *d* and ends at the shaft *c* where the expansion of the plate is taken up by the collars and held by the ratchets.

The ratchets *e* are fastened to the shaft *c* and are preferably of the compound type, so that the slightest movement of the shaft will be taken up by either of the ratchets. Both ratchets have their teeth equally spaced, the teeth of one being out of alinement or positioned centrally between the teeth of the other, (see Fig. 2). In other words these ratchets operate the same as one ratchet with teeth cut closely together.

When the device is in operation the plate *b* comes in contact with an impression cylinder not shown, the pressure thus exerted on the plate tends to stretch it and it is the object of this invention to automatically take up this expansion of the plate.

As shown in Fig. 1 one of the compound ratchets *e* with its pawl has been removed from the shaft *c* in order to avoid undue crowding and to more clearly illustrate the formation of the teeth of the remaining ratchet.

The collars *j* are loosely mounted on the shaft while the ratchets *m* are fastened to the said shaft. Consequently when the device is in operation and a collar is actuated by the stretching proclivity of the plate the pawls *n* move with the collar, clicking over the periphery of the ratchets *m* until they engage one of the teeth of the said ratchet thus preventing retrograde movement of the collars. In this connection it should be stated that the ratchets *e* combined with their pawls prevent retrograde movement of the shaft *c* and at the same time prevent retrograde movement of the ratchets *m* and the collars.

What I claim is:

1. A device of the kind described, comprising a plate support, a shaft journaled in the support, a collar mounted on the shaft, a flexible tensible plate secured to the collar, devices associated with the collar and the shaft for automatically taking up the stretch of the plate by utilizing the pressure exerted on the plate when the device is operated.

2. A device of the kind described, com-

prising a cylindrical plate support, a shaft journaled in the support, a collar mounted on the shaft, a flexible tensible plate secured to the collar, devices associated with the collar and the shaft for automatically taking up the stretch of the plate by employing the pressure exerted on the plate while the device is in operation and means for preventing rearward movement of the collars.

3. A device of the kind described, comprising a cylindrical plate support, a shaft journaled in the support, a flexible tensible plate secured to the shaft, devices associated with the shaft for automatically taking up the stretch of the plate by employing the pressure exerted on the plate while the device is in operation, and means for preventing rearward movement of the shaft.

4. A device of the kind described comprising a cylindrical plate support, a shaft journaled in the support, a series of collars mounted on and having independent oscillation on the shaft, a flexible tensible plate fastened to the collars, devices associated with the collars for automatically taking up the stretch of portions of the plate by utilizing the pressure exerted on the plate when the device is operated.

5. A device of the kind described comprising a cylindrical plate support, a shaft journaled in the support, a series of collars mounted on and having independent oscillation on the shaft, a flexible tensible plate, fastened to the collars, devices associated with the collars for automatically taking up the stretch of portions of the plate by utilizing the pressure exerted on the plate while the device is in operation, and means for preventing rearward movement of the collars.

6. A device of the kind described, comprising a plate support, a shaft journaled in the support, a flexible plate fastened to the shaft, nuts to engage a threaded portion of the shaft, said nuts being adjustable to allow the shaft to be moved longitudinally to position the plate, and devices for preventing rearward movement of the shaft.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM B. WAIT.

Witnesses:

FLORENCE BARR,
MARY MALONEY.