H. A. W. WOOD.

ADJUSTABLE BEARER FOR PRINTING COUPLES.

APPLICATION FILED JUNE 25, 1915. RENEWED SEPT. 19, 1919.

1,338,347. **Patented Apr. 27, 1920.**

Fig. 1.

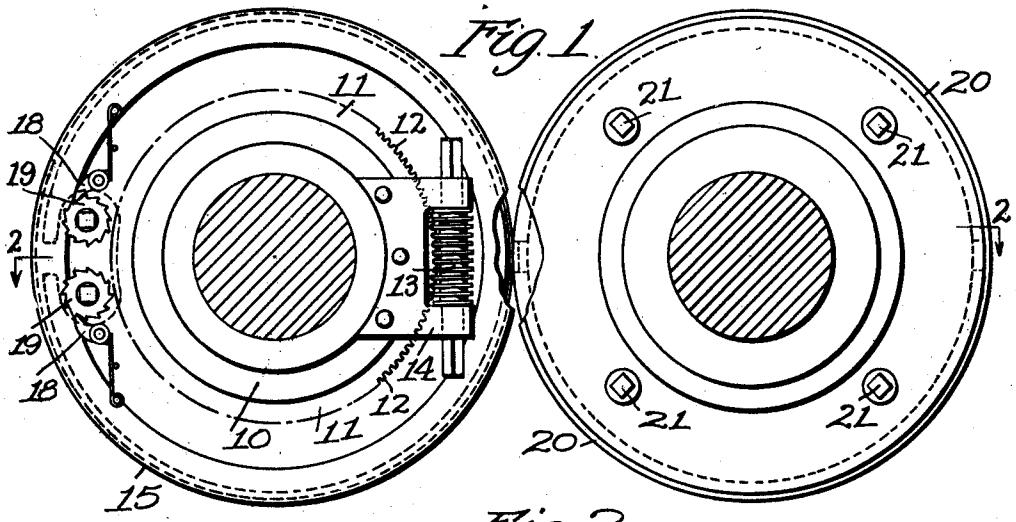


Fig. 2.

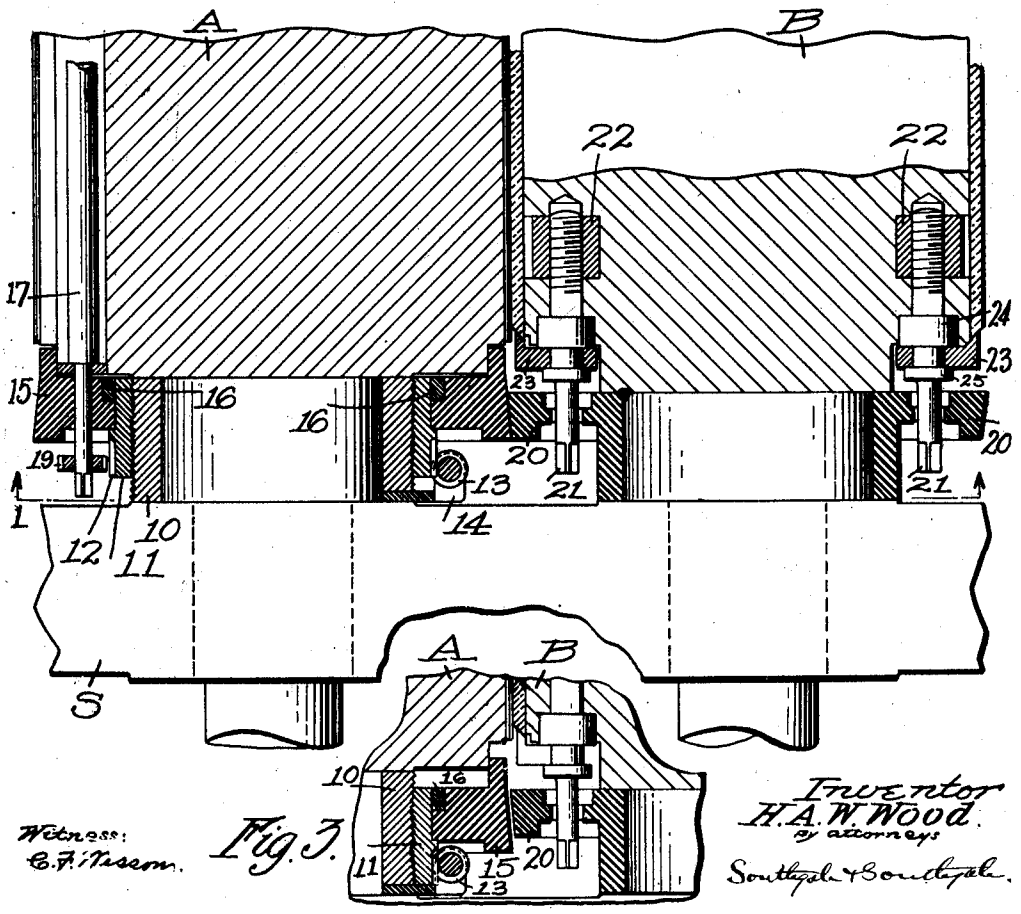


Fig. 3.

Witness:
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UNITED STATES PATENT OFFICE.

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ADJUSTABLE BEARER FOR PRINTING-COUPLES.

1,338,347. Specification of Letters Patent. Patented Apr. 27, 1920.

Application filed June 25, 1915, Serial No. 36,215. Renewed September 19, 1919. Serial No. 325,034.

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Adjustable Bearer for Printing-Couples, of which the following is a specification.

The principal objects of this invention are to provide a simple bridging mechanism by the use of which the margins of the plates on a printing cylinder can be kept in registration and yet the vibration of the cylinder avoided and the necessary adjustment provided for, and at the same time to provide easily manipulated means whereby the cylinders of the couple can be moved nearer together to make up for the thinning of the blankets in use.

Reference is to be had to the accompanying drawings in which,

Figure 1 is an end view of a printing couple provided with a preferred form of this invention, the journals being shown in section;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1 showing one side only of the press; and

Fig. 3 is a similar view of a portion of the mechanism with the parts in a different adjusted position.

As is well known, modern newspaper printing presses are built with the cylinders long enough to take four pages abreast, and a double width web is used. As these cylinders are long, and not great enough in diameter to give them adequate strength, they spring under the stress of the impression. When, however, a margin is reached, and the stress is relieved, the cylinder springs back, and when the margin is passed it springs out again. This sudden release and restoration of tension sets up a vibration in the cylinder which causes to occur in the print, alternate bands of heavy and light printing until the vibration has ceased.

When the margins of all the plates upon such a cylinder coincide, that is, when the feet and heads of all plates are in line and the stress is released and reapplied simultaneously throughout the full length of the cylinder, this effect of vibration is very pronounced. In order to overcome it, it has been the rule to set the pages on one side of the press so that their margins do not correspond with the pages on the other side of the press. Thus it is said the margins are staggered. In this way, the cylinder is supported at one end while passing over the margins at the other end, and vice versa, and the strain is not released and reasserted at any point in the revolution of the cylinder simultaneously throughout its whole length.

It is more advantageous, however, to have the margins coincide, so far as the print paper is concerned, because the open margin arrangement relieves the paper twice during each revolution of the cylinder from tractive strains, and permits the paper to recover its normal tension. Moreover, when plates are staggered and the strains are released first at one side of the web, regarded widthwise, and then at the other, alternating cross strains are set up in rapid succession, which frequently culminate in a break of the paper. This invention is designed for the purpose of preventing the vibration of the cylinders and at the same time keeping the stereotype plates with their margins in registration, and according to this invention the vibration is prevented by holding the long cylinders in constant position at both ends.

The invention is shown in the drawings as applied to an impression cylinder A and a plate cylinder B constituting a printing couple, both journaled in a press side frame S. It will be understood, of course, that the adjustment can be applied to either cylinder, but in this case it is shown on the impression cylinder A. For this purpose the hub of this cylinder is provided with a threaded sleeve 10 fixed thereon, which carries a nut 11. The outer surface of the nut is provided with worm threads 12 on the edge with which a short worm 13 meshes. This worm is journaled on a bracket 14 which is bolted to the threaded sleeve 10. The worm is shown as provided with square ends so that it can be turned by an ordinary wrench or the like.

Bearing on the outside of the cylindrical surface of the inner end of the nut 11 is a circular bearing ring 15 loosely mounted. It is held in place by a ring or sleeve 16 fastened to the inner end of the nut 11. It will be seen, therefore, that the nut 11 can

be revolved without turning the bearer ring 15 on the center. Protruding through suitable openings in the bearer ring 15 are ordinary blanket reel rods 17 having the usual pawls 18 and ratchets 19. This construction also keeps the ring from turning when the nut is turned. The bearer ring is shown as having a conical outer surface, the larger diameter of which is out toward the end of the cylinder journal, that is, toward the side frame. The other bearer ring 20 is fastened to the hub of the plate cylinder B and it is provided with openings or holes through which the usual clip screws 21 extend. The clip screws are threaded into nuts 22 and each carries a clip 23 between a collar 24 and a shoulder 25. The surface of this bearer ring 20 is tapered or conical, having the same pitch as the surface of the other one and having its large end inside instead of outside.

It will be understood, of course, that there is a pair of these bearer rings on the other end and that they are used as bearing surfaces to keep the cylinders in proper relation to each other. They are shown in Fig. 2 as set to one of the limiting positions, that is, the position in which the centers of the cylinders are at the greatest distance apart. This is the position they will assume when a new blanket has just been applied. Whenever the blanket is thinned by use, the worm 13 can be turned minutely and with great ease so as to turn the nut 11 positively and thus cause it to move outwardly on the threaded sleeve 10. The limiting position in this direction is shown in Fig. 3.

As the other bearer ring does not move longitudinally, it, so to speak, slides down the incline and permits the two cylinders to move nearer together, thus compensating for the compression of the blanket. It will be understood, of course, that an adjustment toward this position can be made whenever it is desired to get more impression, and it will also be understood that the plate cylinder B is forced against the impression cylinder A in the usual manner by means of impression screws which are not shown.

In this manner the cylinders are kept in proper relation to each other throughout their operation, and especially when gaps between the plates come into registration with the impression cylinder. Therefore, the plates can be placed with their ends registering with each other so as to make a gap clear across the cylinder and to allow the web to adjust itself and avoid continual increase or decrease of its tension and also avoid the rupture of the web caused by the conditions explained above. Nevertheless, the arrangement is extremely simple and readily adjustable to compensate for the change in the thickness of the blanket.

Although I have illustrated and described only a single embodiment of the invention, I am aware of the fact that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. In a web printing press, the combination with a printing couple, of a longitudinally movable member at the end of one of the cylinders thereof, means for positively and finely adjusting said member longitudinally in both directions, a bearer ring mounted on said member to move therewith positively in both directions and provided with a conical outer surface, and a bearer ring having a similar but opposite conical surface fixed with respect to the other cylinder to engage the conical surface of the first-named bearer ring.

2. In a web printing press, the combination with a pair of double length printing cylinders adapted for printing on a double width web, one a plate cylinder carrying a series of stereotype plates with their margins in registration, and the other an impression cylinder having soft blankets thereon, of means for preventing the vibration of the cylinders, and adjusting them to compensate for the thinning of the blankets, said means comprising a longitudinally movable member on the hub of one of the cylinders, means for adjusting the member positively in both directions along the hub, a bearer ring carried by and positively movable with said member in both directions and provided with a conical outer surface, and a bearer ring having a similar but opposite conical surface fixed to the journal of the other cylinder and adapted to engage the conical surface of the first named bearer ring.

3. The combination with a printing couple, of a longitudinally threaded sleeve fixed with respect to the hub of one of the cylinders thereof, a nut on said sleeve, said nut being provided with a worm threaded on its outer surface, a worm meshing with said thread and adapted to be turned for the purpose of adjusting the nut circumferentially and turning it out and in along the thread of the sleeve, a bearer ring connected with said nut and provided with a conical outer surface, and a bearer ring having a similar but opposite conical surface fixed to the journal of the other cylinder and adapted to engage the conical surface of the first named bearer ring.

4. The combination with a printing cou-

ple, of a longitudinally threaded sleeve, a nut on said sleeve, said nut being provided with a worm threaded on its outer surface, a worm meshing with said thread and adapted to be turned for the purpose of adjusting the nut circumferentially and turning it out and in along the thread of the sleeve, a bearer ring connected with said nut and provided with a conical outer surface, and a bearer ring having a similar but opposite conical surface on the journal of the other cylinder and adapted to engage the conical surface of the first named bearer ring, the second bearer ring being provided with openings for the clip screws.

5. The combination with a printing couple, of a longitudinally threaded sleeve, a nut on said sleeve, said nut being provided with a worm threaded on its outer surface, a worm meshing with said thread and adapted to be turned for the purpose of adjusting the nut circumferentially and turning it out and in along the thread of the sleeve, a bearer ring connected with said nut and provided with a conical outer surface, and a bearer ring having a similar but opposite conical surface on the journal of the other cylinder and adapted to engage the conical surface of the first named bearer ring, the first named ring being provided with openings for the blanket reel rods.

6. The combination with a printing couple, of a longitudinally threaded sleeve fixed with respect to the hub of one of the cylinders thereon, a nut on said sleeve, said nut being provided with a worm threaded on its outer surface, a worm meshing with said thread and adapted to be turned for the purpose of adjusting the nut circumferentially and turning it out and in along the thread of the sleeve, and a bearer ring movable axially with said nut but mounted to permit the nut to turn freely in it.

7. The combination with a printing couple, of a longitudinally threaded sleeve fixed with respect to the hub or one of the cylinders thereof, a nut on said sleeve, said nut being provided with a worm threaded on its outer surface, a worm meshing with said thread and adapted to be turned for the purpose of adjusting the nut circumferentially and turning it out and in along the thread of the sleeve, a bearer ring connected with said nut and provided with a conical outer surface, and a bearer ring having a similar but opposite conical surface fixed to the journal of the other cylinder and adapted to engage the conical surface of the first named bearer ring, the second bearer ring being provided with openings for the clip screws, and the first named ring being provided with openings for the blanket reel rods.

In testimony whereof I have hereunto set my hand, in the presence of a subscribing witness.

HENRY A. WISE WOOD.

Witness:

BLODWEN W. JONES.