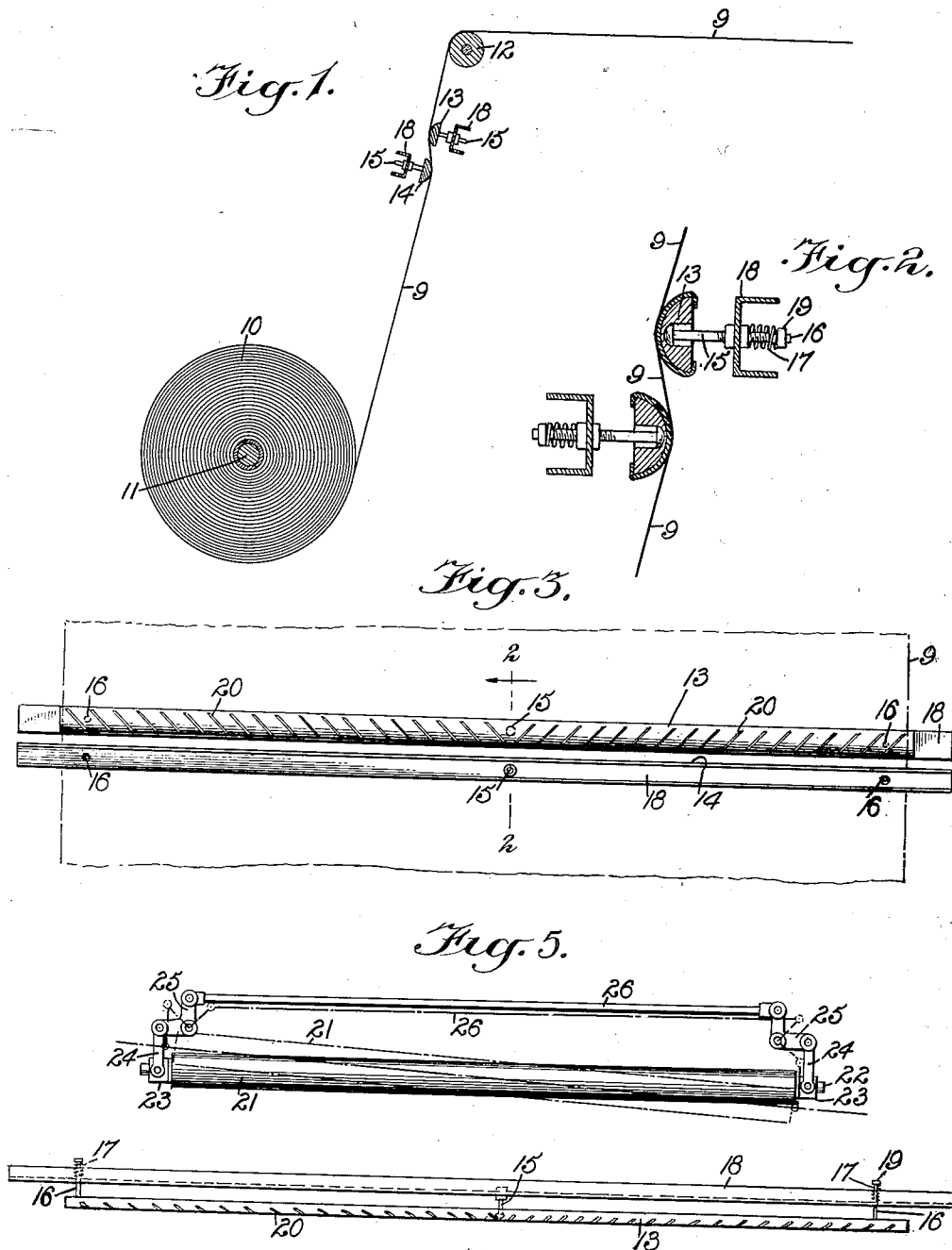


J. M. TRIER.
TENSION EQUALIZER FOR PRINTING PRESS WEBS.
APPLICATION FILED SEPT. 12, 1916.

1,240,631.

Patented Sept. 18, 1917.



WITNESSES
Geo. M. Taylor
Ed. M. Lock

Fig. 4.

INVENTOR
James M. Trier
BY *Mumford*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES M. TRIER, OF NEW YORK, N. Y.

TENSION-EQUALIZER FOR PRINTING-PRESS WEBS.

1,240,631.

Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed September 12, 1916. Serial No. 119,655.

To all whom it may concern:

Be it known that I, JAMES M. TRIER, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county of Bronx and State of New York, have invented a new and Improved Tension-Equalizer for Printing-Press Webs, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to maintain an even pressure on paper while being fed to a continuous acting printing press; to take up slack which may occur in paper when delivered to a press from rolls; to prevent tearing or breaking of paper or web while being delivered to the printing press; to maintain the spread; and to smooth the web while being delivered to the said press.

Drawings.

Figure 1 is a skeleton view showing a roll of paper and a web extension therefrom for delivery over the pipe or guide roller of a printing press, and an equalizer constructed and arranged in accordance with the present invention, the equalizer and pipe or guide roller being shown in section;

Fig. 2 is an enlarged detail view showing in cross section an equalizer constructed and arranged in accordance with the preferred form of the invention, and in connection therewith a fragment of paper web in service relation thereto;

Fig. 3 is a face view of the preferred form of the equalizer showing in conjunction therewith, by broken lines, a fragment of paper web;

Fig. 4 is a top plan view of one of the equalizers and mounting therefor;

Fig. 5 is a top plan view of an equalizer constructed and arranged in accordance with a modified form of the invention.

Description.

The invention is employed chiefly in conjunction with printing presses of larger type where the paper is fed thereto as a continuous web 9 from a large roll 10. The roll 10 is supported on a spindle 11 at the rear of the press and is usually provided with some desired form of brake or drag to neutralize the inertia imparted to the roll during the feed of the paper. The web is usually delivered between the printing cyl-

inders of the press over a pipe or guide roll 12.

Owing to atmospheric or other conditions, the paper forming the roll 10 often stretches unevenly. Also the paper becomes folded upon itself forming a batter, which when level or smooth has the effect of increasing the length of the section of the web in which it is formed. Again, the paper when rolled may be damaged or torn with the effect that the section where the damage or tear occurs is relatively weak and does not support its proportion of the strain or tension on the web. All of these conditions operate to the disadvantage of the paper feed, resulting either in a lateral shift or displacement of the web, or in the tearing or separating thereof. Both of these results operate to the disadvantage of the press causing a serious delay in the operation thereof during the re-adjustment of the web to the press.

To overcome the above-noted objections, the present invention provides an equalizer having bars 13 and 14. These bars are held approximately parallel and in spaced relation by pivots 15, guide pins 16, and springs 17. The springs 17 extend through perforations in framing bars 18. The tension of said springs is varied and balanced by nuts 19.

As seen best in Fig. 2 of the drawings, the bars 13 and 14 are disposed so that the rounded faces of each are turned toward the other. As seen best in Fig. 3 of the drawings, the opposed faces of the bars are provided with two sets of inclined ridges 20. Both sets of ridges 20 terminate at the center of the bars 13 and 14, and are inclined outwardly and upwardly, and are covered with felt or other fabric for cleaning and for frictionally engaging the paper of the web 9 to spread the same toward the outer ends of said bars. In this manner, the paper is generally smoothed and cleaned to remove all inequalities and dirt therefrom.

In the operation of the invention, when the inequalities in the paper or web 9, above referred to, pass between the bars 13 and 14, the unequal pressure imposed thereon due to the variation in tension on the web 9, results in rocking the said bars 13 and 14 on the pivots 15 until the tension or drag on the paper is equalized throughout the width of said paper. In this manner the strain or tension of the web 9 is maintained equal and

the chances of wrinkling or tearing the web above referred to are avoided.

The modified form of the invention shown in Fig. 5 of the drawings provides as a substitute for the wiping bars 13, a roller 21. The roller 21 is provided with pintle ends 22, which have bearing in bearing boxes 23 at the ends of said roller. The boxes 23 are provided with arms 24, which are pivotally connected with bell crank levers 25, the ends whereof are operatively united by a reach bar 26. By means of the reach bar 26, and the opposite arrangement of the bell crank levers 25, the ends of said bell crank levers which are connected with the arms 24, are oppositely moved to and from the printing press frame. That is to say, if pressure is applied by the web 9 at one side thereof, the roller 21 will yield to the unequal pressure and resist toward the frame of the printing press at one end, the adjacent bell crank lever 25 rocking to permit this action. A compensating rocking action is imparted by means of the reach rod 26, to the opposite bell crank lever 25, which is rocked so that the free end thereof or end connected with the rod 24 at the opposite end of the roller 21, is moved outwardly and to a corresponding degree. The degree of this adjustment corresponds with the unequal pressure of the different sections of the web on the roller 21.

Like the operation above described with regard to the bars 13 and 14, the action of the roller 21 results in equalizing the tension upon the web 9 throughout the full width thereof.

Claims.

1. An apparatus as characterized comprising a plurality of guide members for guiding and smoothing out the paper web of a printing press while being fed to the printing rolls, said members being disposed in paired relation, the members of each pair being disposed in spaced relation at opposite sides of said web, the spacing being lengthwise of said web, said members being further arranged in staggered relation to extend to opposite sides of the plane of said web and pivots for said members, said pivots forming a rocking engagement with said

members adjacent the contact surface thereof to avoid lateral movement of said members when being rocked.

2. An apparatus as characterized comprising a plurality of guide members for guiding and smoothing out the paper web of a printing press while being fed to the printing rolls, said members being disposed in paired relation, the members of each pair being disposed in spaced relation at opposite sides of said web, the spacing being lengthwise of said web, said members being further arranged in staggered relation to extend to opposite sides of the plane of said web; pivots for said members, said pivots forming a rocking engagement with said members adjacent the contact surface thereof to avoid lateral movement of said members when being rocked; and yielding means for normally maintaining the parallel relation of said guide members.

3. An apparatus as characterized comprising a plurality of guide members for guiding and smoothing out a paper web while being fed to a printing press, said members being pivotally supported in spaced relation on opposite sides of said web and in lapped relation each to the other and to the normal path of said web for maintaining a drag on said web, said members being adapted to be rocked in relatively opposite directions for diminishing and increasing relatively the deflection of said web at opposite sides of the linear center thereof.

4. An apparatus as characterized comprising a plurality of guide members for supporting a paper web while being fed to a printing press, said members being pivotally supported in spaced relation on opposite sides of said web and in lapped relation each to the other and to the normal path of said web for maintaining a drag on said web, said members being adapted to be rocked in relatively opposite directions for diminishing and increasing relatively the deflection of said web at opposite sides of the linear center thereof, said diminution and increment of deflection being complementary for equalizing and steadying the tension on said web.

JAMES M. TRIER.