No. 750,710. PATENTED JAN. 26, 1904.

S. H. SHAW.

ROLLER WHEEL FOR FORM INKING ROLLERS OF PRINTING PRESSES.

APPLICATION FILED DEC. 14, 1901.

NO MODEL.

Fig. 5.

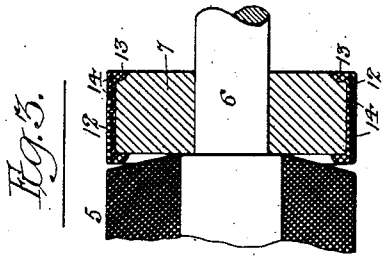


Fig. 6.

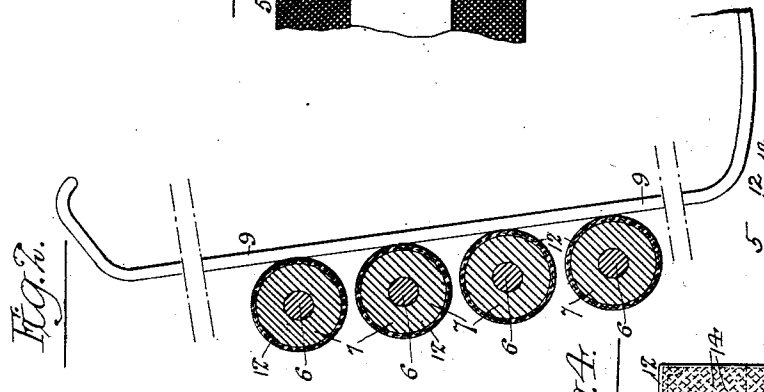


Fig. 4.

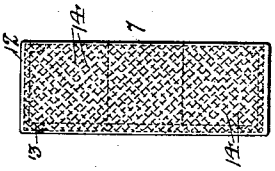


Fig. 3.

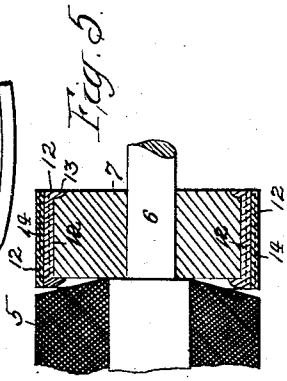
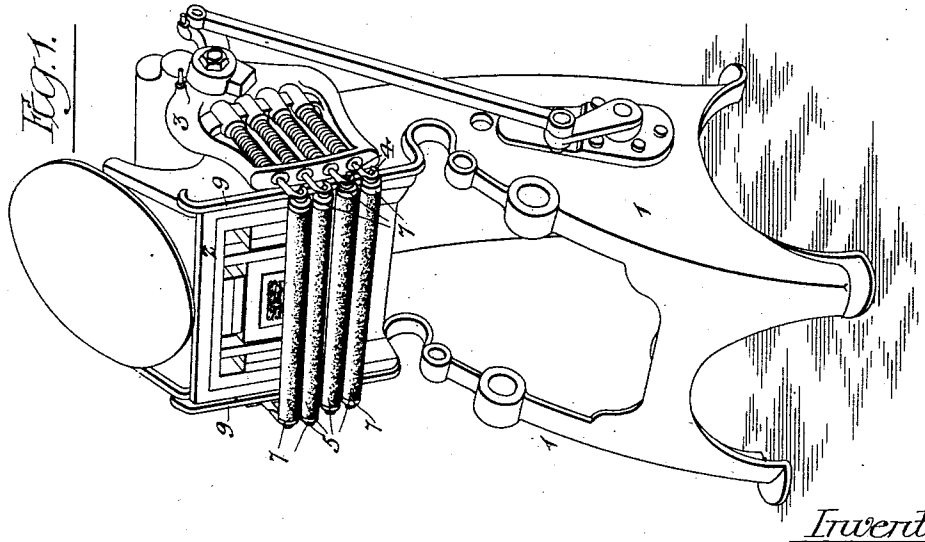


Fig. 1.



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No. 750,710. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

SAMUEL H. SHAW, OF PHILADELPHIA, PENNSYLVANIA.

ROLLER-WHEEL FOR FORM-INKING ROLLERS OF PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 750,710, dated January 26, 1904.

Application filed December 14, 1901. Serial No. 85 929. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. SHAW, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Wheels for Form-Inking Rollers of Printing-Presses, of which the following is a specification.

The object of my invention is to provide the roller-wheels on the shafts of the form-inking rollers of printing-presses with means whereby uniform pressure of the said inking-rollers upon the type will be insured and excessive pressure upon the inking-roller composition, such as usually tends to rapidly destroy the same as well as to cause improper inking of the form, will be prevented. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of sufficient of an ordinary job-printing press to illustrate my invention. Fig. 2 is a larger view, partly in side elevation and partly in section, of that part of the press to which my invention particularly relates. Fig. 3 is a longitudinal section of one end of one of the form-inking rollers and its roller-wheel with my invention applied to the latter. Fig. 4 is a plan or face view of one of the attachments constituting my invention; and Fig. 5 is a view similar to Fig. 3, but showing a roller-wheel with double instead of single tire.

In Fig. 1 of the drawings, 1 represents part of the fixed frame of the press, 2 the bed upon which the type-form is secured, and 3 a swinging frame carrying a series of spring-actuated hooks or roller-journals 4. The inking-rollers of the press are represented at 5, and upon the spindles 6 of these rollers, at each end, are mounted wheels 7, which run upon rails 9 at opposite sides of the bed, the spindles 6 being engaged by the spring-actuated hooks 4, so as to draw the wheels 7 into contact with the rails 9 and cause the inking-rollers 5 to bear upon the face of the type-form mounted upon the bed. The roller composition is generally cast or molded in a body of greater diameter than the roller-wheel 7 to compensate for shrinkage, the disparity being always so great that the body of the composition exceeds the diameter of said roller-wheel 7 when in use by from one thirty-second to one-eighth of an inch. If no provision is made to compensate for this excess in the diameter of the roller composition, there will be excessive pressure of the inking-rollers upon the type, which will cause a slur in the printing and will be eventually cut or torn by reason of the continual striking of the same against the form, and in printing from some forms, such as a number of separated lines, the rollers will be apt to jump from one line to another, thereby causing unevenness in the printing—that is to say, printing some lines darker than others. With the view of lessening these evils strips of wood or metal, type high and about one-half of an inch wide and generally of the full length of the chase, are sometimes locked inside the chase with the form, one on each side of the latter, these strips being termed "bearers." When the inking-rollers move up and down over the form, the end portions of said inking-rollers run upon these bearers; but if the composition is new and soft the bearers will cut into the same, and thus fail to perform their intended duty of raising the rollers to the level of the face of the type-form, and when the composition has become set the bearers rapidly wear the same by constantly coming into contact with the same surface, and the bearers themselves wear out and break. Furthermore, there are forms that will not permit of the use of bearers, such as large forms or small forms printed on a large sheet, for it will be understood that the bearers as well as the type are supplied with ink by the rollers 5. Hence the paper upon which the printing is being effected cannot overlap these bearers. It is the common habit of pressmen in order to overcome the defects noted to paste strips of paper or cardboard on the tracks 9 for the full length of the chase, these strips of cardboard or paper being of sufficient thickness to raise the wheels 7 to an extent sufficient to compensate for the increased diameter of the inking-rollers; but there are several objections to this plan. In the first place the ink-

ing-rollers of a set may be of different diameters, because one roller is liable to wear out before another and new rollers are often used in combination with old ones. If, therefore, the thickness of paper pasted upon the tracks 9 is only sufficient to compensate for the inking-roller of the set having the least excess of diameter, it will not prevent excessive pressure by and upon the inking-rollers of greater diameter, while if it is sufficient to compensate for the inking-roller having the greatest excess of diameter it will prevent proper contact with the form of the inking-rollers of less diameter. Again, considerable time is required in order to gage the proper thickness of material to be applied to paste the same upon the tracks and to permit it to dry, and the paper strips are liable to become torn, and thus interfere with the proper running of the press. In addition to this the platen of the press, which forces the paper into contact with the inked form, overlaps the tracks 9, and if the paper strips built up upon the tracks project much above the level of the type-form they prevent the platen from properly pressing the paper upon the inked face of the form and have even been known to exert such a strain upon the platen as to warp or break the same or other portions of the press.

I overcome all of the objections noted by providing each of the roller-wheels 7 with a special tire, preferably of rubber or other resilient material, these tires being of different thicknesses, so that each will accurately compensate for the excess of diameter of the particular inking-roller in connection with whose wheels it is intended to be used. Each tire preferably consists of a ring 12, of rubber or other resilient material, having at each edge a bead or flange 13, which overlaps the sides of the roller-wheel and prevents lateral displacement of the tire upon the same, each tire also having embedded therein, by preference, a strip 14 of woven wire or textile material, providing a stiffening or strengthening core for the ring, the warps and wefts of the woven strip running diagonally, as shown in Fig. 4, so that the same will not interfere with the expansion and contraction of the rubber ring. Instead of being embedded in the ring the woven strips may, if desired, be located upon the inner or outer surface of the ring.

By the use of one or more of the detachable tires a roller-wheel can be almost instantly built up in diameter so as to accurately compensate for the increased diameter of the inking-roller in connection with which it is used, thereby overcoming all the objections arising from undue pressure upon the roller composition as well as those resulting from the use of strips of paper or other material upon the tracks 9, and also rendering unnecessary the use of the bearers with their attendant disadvantages.

Another improvement due to the use of the resilient tires upon the roller-wheels 7 is the increased tractive effect between the said roller-wheels and the tracks 9, whereby the inking-roller is caused to turn as soon as its roller-wheels strike the tracks, said inking-roller being thus in motion when it comes in contact with the form, thereby preventing any slur in the printing at that point.

While I prefer to use the rubber rings having edge ribs or flanges, said ribs or flanges can be dispensed with, if desired, as in the case of the outer tire shown in Fig. 5, or a rib or flange at one edge only may be used, and tires of other material than rubber—such, for instance, as leather, cork, textile material, or the like—constructed to fit snugly to the periphery of the roller-wheel may be employed.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. An adjusting device for printing-rollers comprising one or more compressible and elastic bands at each end of the roller arranged to travel in contact with a track and adapted to be removed and replaced to adjust the roller.

2. An adjusting device for printing-rollers comprising a series of superimposed compressible and elastic bands at each end of the roller arranged to travel in contact with a track.

3. A truck for printing-rollers comprising a body having one or more thin compressible and elastic bands arranged thereon and adapted to be removed and replaced on the body to change the diameter of the truck.

4. A truck for printing-rollers comprising a body having one or more endless compressible and elastic bands arranged thereon and adapted to be removed and replaced on the body to change the diameter of the truck.

5. A truck for printing-rollers comprising a body having a series of superimposed removable compressible and elastic bands arranged thereon.

6. The combination of the roller-wheel of the form-inking roller of a printing-press, with a resilient tire applied thereto and having continuous edge ribs or flanges overlapping the sides of the roller-wheel, substantially as specified.

7. The combination of the roller-wheel of the form-inking roller of a printing-press, with a tire of resilient material applied thereto and having embedded within it a single layer of stiffening and strengthening web, substantially as described.

8. The combination of the roller-wheel of the form-inking roller of a printing-press, with a series of superposed tires applied thereto and each having a stiffening and strengthening core embedded therein, substantially as specified.

9. The combination of the roller-wheel of the form-inking roller of a printing-press, with a resilient tire applied thereto and having combined therewith a stiffening and strengthening web composed of woven fabric having its warps and wefts diagonally disposed so as to permit of its expansion and contraction, substantially as specified.

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

SAMUEL H. SHAW.

Witnesses:
F. E. BECHTOLD,
JOS. H. KLEIN.