

(No Model.)

W. R. FARNSWORTH.
PAPER REEL.

No. 471,788.

Patented Mar. 29, 1892.

Fig. 1.

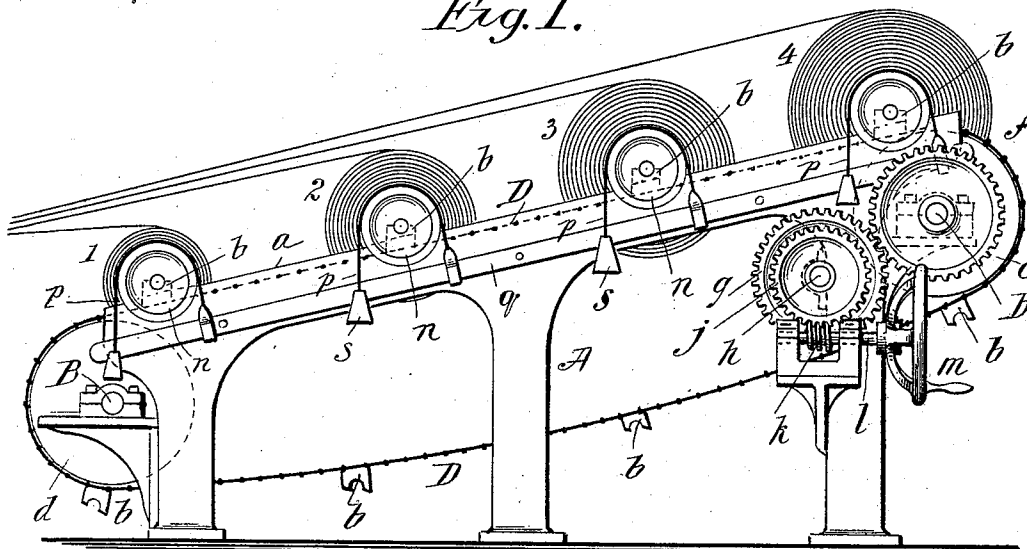


Fig. 2.

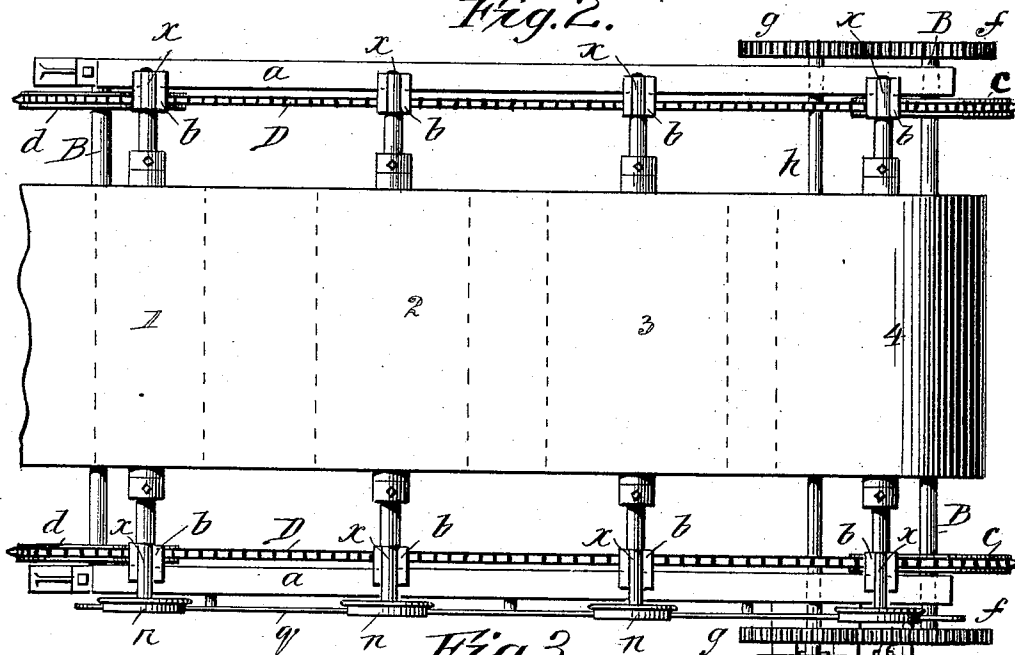


Fig. 3.

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PAPER-REEL.

SPECIFICATION forming part of Letters Patent No. 471,788, dated March 29, 1892.

Application filed March 2, 1891. Serial No. 383,509. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. FARNSWORTH, a citizen of the United States, residing at Turner's Falls, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Paper-Reels, of which the following is a specification.

The object of this invention is to improve the construction of paper-reels for paper-machines whereby there may be readily fed several—say four or five—ends of paper from as many paper-rolls which are on the reel to the action of a paper-cutter or of a paper cutter and slitter, and all so that one man may readily mount the paper-rolls on the reels and discharge the carrying portions therefor when the paper has been drawn off therefrom and to advance the positions of unexhausted rolls, and to then place at the rear of the reel-frame a fresh paper-roll, and, as above indicated and otherwise, all to the end of rendering the roll most convenient, easy, and efficient of operation and also most simple and durable.

The invention consists in the construction and combination of parts, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which a reel constructed in accordance with this invention is illustrated.

Figure 1 is a side view of the reel, Fig. 2 being a plan thereof. Fig. 3 is a view in perspective on a larger scale, showing one of the bearing-boxes for a journal of the paper-roll and a short portion of the carrying or drive chain.

In the drawings, A represents the reel-frame, which is suitably formed and braced and designed to occupy a rectangular space, and the upper opposing parallel edges or rails *a a* of the side members of said frame incline from the rear end forwardly and downwardly, substantially as shown.

B B represent transverse shafts, which are supported in suitable bearings on the side members of the frame, each carrying near its opposite end and just inside of said frame sides sprocket-wheels *c c* and *d d*. Endless drive or sprocket chains D are passed around and supported on side pairs *c d* of said sprocket-wheels, which in turn support and carry boxes *b b*, which preferably have open tops,

substantially as shown, for the reception of the journal extremities *x x* of the paper-rolls M. Each box *b*, as shown in Fig. 3, is formed of lower and upper parts 10 and 12, the former being connected directly to the chain, while the latter, in which the bearing-socket for the paper-roll journal is formed, is adjustable on the part 10 in the direction of the run of the chain. As particularly shown, the said parts are fitted the one to the other by tongue and groove, as indicated at 13, one part carrying the bolt 14 and the other having the slot 16, through which the said bolt passes, the parts being clamped or held together, as plain, by the setting up of the nut 15. Due to this provision boxes at each side of the rail may be caused to accurately oppose each other, even if the chains are not exactly alike, or if the one on being mounted fails to have the links thereof exactly correspond with those of the other, so that the paper-rolls may be set with their axes truly parallel, insuring the even drawing off of the paper therefrom.

As shown in Fig. 3, the upper part 12 of each box *b* has a greater width or extent transversely of the machine than the lower part, which is secured upon the chain, or, in other words, a suitable portion of the box is so formed that as it is carried with the chain in proximity with the upper portion of the reel-frame said box portion will have a bearing and rest upon the downwardly and forwardly inclined edge portion *a* of the reel-frame, which latter sustains the weight of the boxes and of the paper-rolls thereon, relieving the chain.

Upon one of the sprocket-carrying shafts, preferably the rear one, and upon each end thereof, are mounted gear-wheels *f f*, with which mesh gear-wheels *g g* of a counter-shaft *h*, which latter shaft also carries a worm-wheel *j*. A worm *k*, mounted on the shaft *l*, engages the said worm-wheel, and the said worm-shaft is conveniently turned by means of the hand-wheel *m*.

Now assuming that in the use and operation of the improved reel, from which the paper is drawn off the one layer above the other, as indicated from the paper-rolls 1, 2, 3, and 4, for being brought to the action of paper cutters or slitters and that the paper on the foremost roll becomes exhausted, the chains

are carried forwardly through means of the gearing described on the turning of the hand-wheel *m*, the paper-roll 2 then advancing to the position which had been occupied by roll 1, the arbor for which is now removed, and the supporting-boxes of which are moved down and around with relation to the forward sprocket-wheels. The boxes which had, before the withdrawal of all the paper from roll 1, remained at the rear end of the reel, now occupy the position on the reel which had been made vacant by paper-roll 4, and by means of a suitable hoist or other handling appliances a fresh full roll is placed upon the pair of boxes brought to position therefor.

It is intended to employ, usually, paper-rolls on which are wound strips of paper of uniform length and to draw off from the first mounted roll a suitable portion of the paper before said roll is advanced and the next roll mounted on the reel, for by this mode of procedure the paper from the rolls in the series will become successively exhausted at the front of the reel, so that no breaks or lapses will be necessary in the running of the paper machinery, except for replacing the exhausted forward roll, so that the same number of sheets or layers may always be carried to the action of the cutter or cutters.

The arbor of each paper-roll is shown as extended at one side of the reel beyond the box *b* therefor, and is provided with a friction disk or wheel *n*, which is fixed thereon. *p*, Fig. 1, represents a frictional strap for each of said disks, which by its one end has a sliding engagement with the rail *q* on the frame, and which strap by its other end is provided with a weight *s*. These friction devices prevent any forward rotation of the paper-rolls, except as they are turned by the tension of the paper as the same is drawn forwardly for being cut.

What I claim as my invention is—

1. In a reel for paper-machines, the combination, with a supporting-frame and wheel mounted at each side thereof toward the forward and rear end of the frame, of endless chains around and supported on side pairs of said wheels and having at intervals throughout their entire lengths opposing series of open bearing-boxes for the temporary reception of the paper-roll journals, substantially as described.

2. In a reel for paper-machines, the combination, with a suitable frame and wheels mounted at each side thereof toward the for-

ward and rear ends of said frame, of endless drive-chains around and supported on side pairs of said wheels and said chains having series of opposing bearing-boxes for the journals of paper-rolls, which boxes are adjustable longitudinally on their respective chains, substantially as described.

3. In a reel for paper-machines, the combination, with a suitable frame and supporting sprocket-wheels mounted at each side thereof toward the forward and rear ends of said frame, of endless drive-chains around and supported on side pairs of said wheels and said chains having series of opposing bearing-boxes for the journals of paper-rolls, which by portions thereof are adapted to bear upon and slide along the top edges of the side members of said frame, substantially as described.

4. In a reel for paper-machines, the combination, with a suitable frame and sprocket-wheels mounted at each side thereof toward its forward and rear ends, of endless drive-chains around and supported on side pairs of said wheels, said chains having series of opposing bearing-boxes for the journals of paper-rolls, which are longitudinally adjustable on their respective chains, which by portions thereof bear upon and are adapted to slide upon the top edges of the side frame members, and a shaft which is connected with one of said sprocket-wheels, having a gear thereon and a worm which is geared to said gear, and means for insuring the rotation of the said worm, substantially as described.

5. In a reel for paper-machines, in combination, a frame provided with the rail *q*, and the transverse shafts *B B*, carrying pairs of sprocket-wheels *c d*, the chains *D D*, having socketed bearing-boxes which are adjustable along same and adapted for support and movement along the upper edges of the frame sides, arbors for paper-rolls, adapted to bear in said boxes and provided with the friction-disks *n n*, friction-straps provided with clips which are adapted for a sliding engagement with said rail *q*, and weights for said straps, and a driving-gear for said sprocket and chain mechanism, substantially as described.

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Witnesses:

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