No. 742,788. PATENTED OCT. 27, 1903.

J. HOBERG, Sr. & F. H. HOBERG.

ADJUSTABLE REEL FOR PRINTING PRESSES.

APPLICATION FILED DEC. 20, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

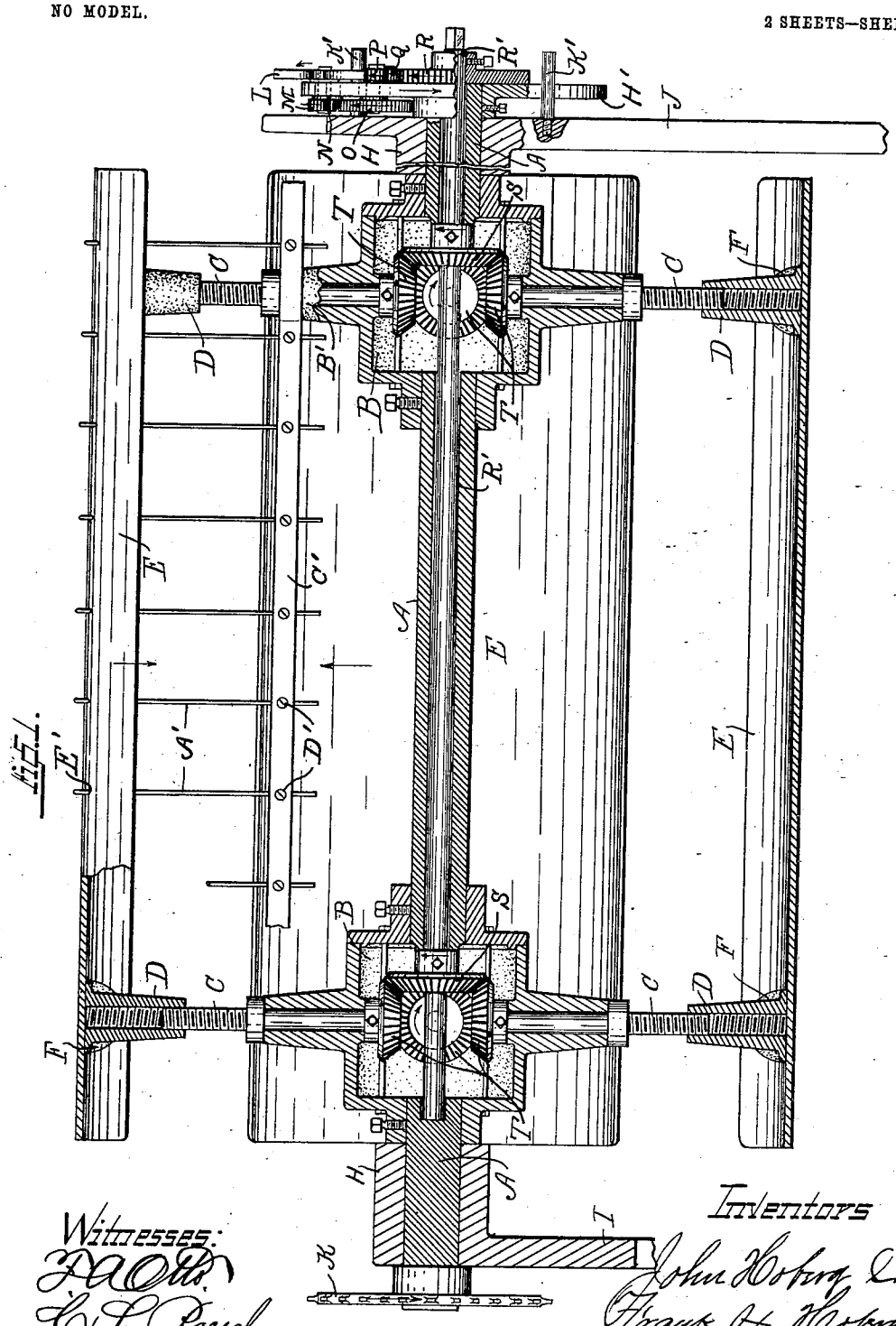


Fig. 1.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

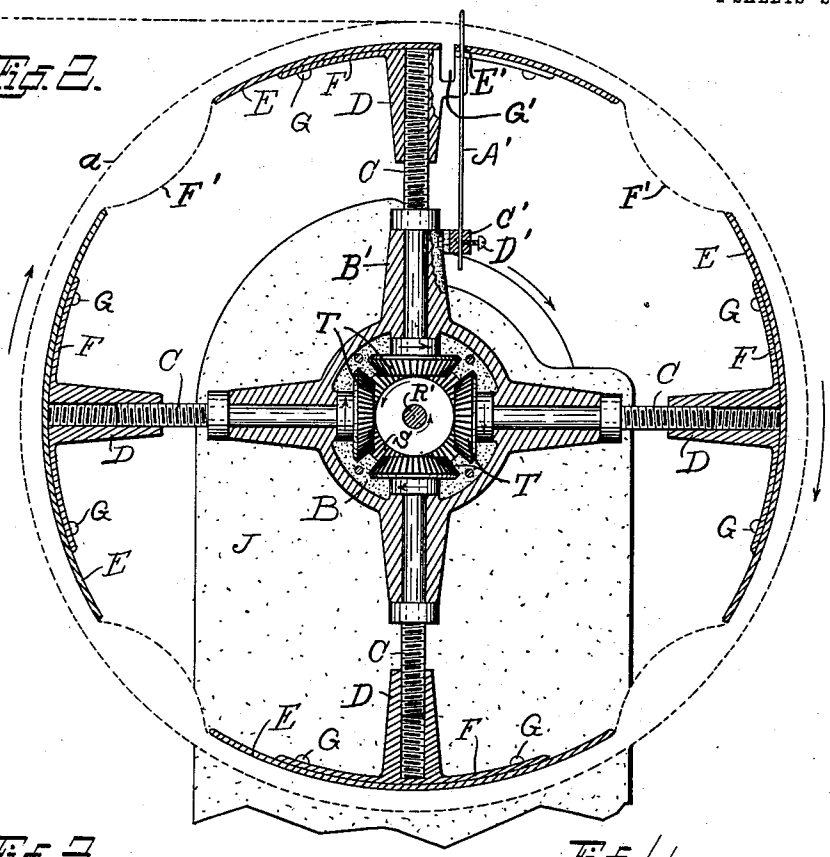


Fig. 3.

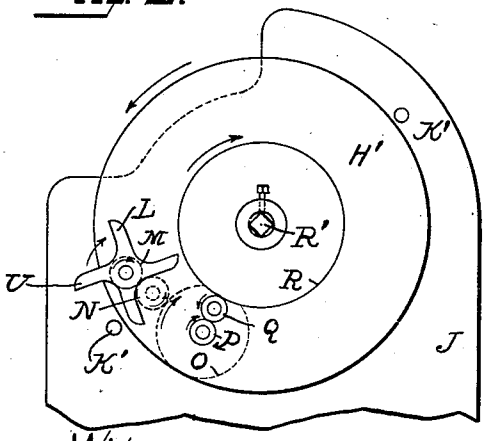
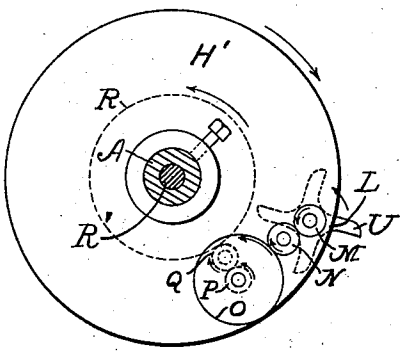


Fig. 4.



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No. 742,788. Patented October 27, 1903.

UNITED STATES PATENT OFFICE.

JOHN HOBERG, SR., AND FRANK H. HOBERG, OF GREENBAY, WISCONSIN.

ADJUSTABLE REEL FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 742,788, dated October 27, 1903.

Application filed December 20, 1901. Serial No. 86,660. (No model.)

To all whom it may concern:

Be it known that we, JOHN HOBERG, Sr., and FRANK H. HOBERG, citizens of the United States, residing at Greenbay, county of Brown, and State of Wisconsin, have invented new and useful Improvements in Adjustable Reels for Printing-Presses, of which the following is a specification.

The object of our invention is to provide a reel for paper which will be automatically contracted in diameter with each revolution upon its axis a distance corresponding with the thickness of the paper wound thereon, whereby the diameter of the roll of paper upon the reel will remain constant regardless of the number of folds or thicknesses of paper in the same and whereby when the roll of paper has been cut and straightened out into a horizontal position all the sheets contained therein will be of uniform length and whereby when printed upon all the printed matter will occupy the same relative position upon such sheets.

The construction of our invention is explained by reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section. Fig. 2 is a transverse section drawn on line *x x* of Fig. 1. Fig. 3 is a front view of the plate which supports the reel-actuating mechanism, and Fig. 4 is a rear view of the same plate.

Like parts are identified by the same reference-letters throughout the several views.

The reel consists of a central supporting-shaft A, gear-chambers B B, which chambers are respectively coupled to the central and end portions of the shaft A, radial arms C, having screw-threaded bearings at their outer ends in the sleeves D, sleeves D, and transverse bars E, which bars E are rigidly affixed to the flanges F on the sleeves D by bolts G. The ends of the shaft A are supported in journal-bearings H of the standards I and J, which standards form a part of a stationary frame for the reel. A sprocket-wheel K is rigidly affixed to one end of the shaft A, by which motion is communicated to the reel by a sprocket-chain from a motive power. An ordinary belt and pulley or gears may, however, be substituted for such sprocket wheel and chain, if desired.

To provide for maintaining the roll of paper at a constant uniform diameter at its periphery as it is being wound thereon, it becomes necessary, as stated, to contract the reel slightly with each revolution a distance corresponding with the thickness of each additional layer or sheet of paper. This end is accomplished by revolving the several screw-threaded arms C in their screw-threaded sleeves D a partial revolution with each revolution of the reel. Motion is communicated to the several arms C simultaneously from the stationary stops K′ through the star-wheel L, chain of gears M, N, O, P, Q, and R, shaft R′, miter-gear S, (which gear S is secured to said shaft R′,) and the several miter-gears T. The gears T are respectively secured to the several arms C, and they all mesh into the gear S, by which they are driven. The several gears in said chain M to R, respectively, are of such relative size as to properly reduce the motion of the arms C, so that the reel will be contracted, as stated, a distance corresponding with the thickness of the paper with each revolution of the reel.

The arms U of the star-wheel are located at such distances apart that when one of them is brought in contact with the stop K′ said wheel will be rotated, so that the next succeeding arm will be brought in position to contact with the next succeeding stop. To prevent the paper from slipping on the reel as it is being wound thereon, a series of pins A′ is provided, which pins are supported at their inner ends from the sleeve B′ by the bar C′ and set-screws D′, and they are stayed or held in place at their outer ends in apertures E′, formed in the bars E.

When starting the reel, the transverse bars E are adjusted at the extreme limit of the outward movement at the point indicated by the dotted line *a* in Fig. 2, and the series of pins is adjusted so as to perforate one layer of paper after another as it is wound on the reel, whereby all the layers of paper are perforated and held in place as they are wound thereon. It will now be understood that the end of a long sheet of paper being secured to said pins and the reel rotated its diameter will be so contracted as to cause each additional layer to be precisely the same length as the first and that as the roll of paper increases in bulk the slack of the first or any one sheet will be permitted to bend inwardly toward

the central shaft, as indicated by dotted lines F'. A slit G' is formed in the bars E for the reception of a cutting instrument which is used to sever the paper at that point preparatory to removing the same from the reel.

It will of course be understood that the gear R is rigidly secured to the central shaft R, while the other gears in said chain, M to Q, inclusive, are supported from the exterior shaft A by the plate H'. To provide for expanding the reel when the paper has been cut and removed therefrom, the central shaft R' is preferably made rectangular in shape for the reception of a crank, by which said shaft is turned and the radial arms C rotated until the bars E are thrown outwardly to the required diameter, as indicated.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a reel, the combination of a shaft supported at its ends from a frame in suitable journal-bearings; revoluble radial arms adjustably supported from said shaft; annular series of bars supported around said shaft from the outer ends of said radial arms; means for communicating a rotary movement to said central shaft; and means for communicating motion from said central shaft to said radial arms and bars, and reducing the diameter of the reel with each revolution thereof, as set forth.

2. In a reel, the combination of a shaft supported in suitable journal-bearings; radial arms revolubly supported from said shaft; a series of bars supported around said shaft from said radial arms; means for rotating the reel, comprising said shaft, bars and arms; means for contracting the diameter of the reel as it is revolved on said shaft; a series of radial pins supported from a revoluble part of said reel, and having their outer ends protruding past the periphery of said bars, as set forth.

3. In a reel, the combination of a shaft supported at its ends in journal-bearings; an annular series of bars supported at intervals around said shaft; radial revoluble arms supported at their inner ends in journal-bearings upon said shaft, and provided at their outer ends with screw-threaded bearings operating in screw-threaded sleeves affixed to the bars of said annular series; beveled gears affixed to the inner ends of said radial arms; a shaft located centrally within said supporting-shaft; beveled gears secured to said central shaft and meshing with the beveled gears on said radial arms; means for revolving the exterior shaft, together with the parts supported thereon; and means for changing the relative movements of said central and exterior shafts, whereby said radial arms are revolved and the diameter of the reel contracted, substantially as set forth.

4. In a reel, the combination of a shaft supported at its ends in journal-bearings; an annular series of bars supported at intervals around said shaft; radial revoluble arms supported at their inner ends in journal-bearings upon said shaft, and provided at their outer ends with screw-threaded bearings operating in screw-threaded sleeves affixed to the bars of said annular series; beveled gears affixed to the inner ends of said radial arms; a shaft located centrally within said supporting-shaft; beveled gears secured to said central shaft and meshing with the beveled gears on said radial arms; an annular plate supported from said exterior shaft; a gear supported from said central shaft; stationary stops projecting from the side of the shaft-supporting frame; a star-wheel supported from the side of said annular plate; a chain of gears communicating from said star-wheel to the gear supported from said central shaft, whereby as said reel is rotated, the arms of said star-wheel are brought in contact with said stops and a rearward movement is communicated through said chain of gears to said central shaft, and from thence through said radial arms and the periphery of said reel, whereby said reel is contracted with each revolution thereof, substantially as and for the purpose specified.

5. The combination in a contracting reel of a hollow shaft with gear-shaft within, reducing-gear with star-feed, hollow hubs with bevel-gears, hollow arms with threaded shafts and collars, flanged nuts with metal reel-plates attached, reel-plate with slot, needle-bar and needles, all substantially as set forth.

6. In a contracting reel a hollow shaft with gear-shaft within, as set forth.

7. In a contracting reel a disk carrying reducing-gears at end of hollow shaft with gear-shaft within, as set forth.

8. In a contracting reel a reducing-gear actuated by a star-feed or prong wheel, as set forth.

9. In a contracting reel flanged threaded nuts attached to metal reel-plates, as set forth.

10. In a contracting reel a needle-bar with set or thumb screws for holding and adjusting needles, as set forth.

11. In a contracting reel a series of needles to perforate and hold the material wound, as set forth.

12. In a contracting reel a needle-bar, and needles in close proximity or conjunction with a slot for cutting the material wound as set forth.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN HOBERG, SR.
FRANK H. HOBERG.

Witnesses:
HENRY GOETHE,
HENRY HOBERG.