

(No Model.)

G. B. FARRINGTON & N. CURTIS.
SHELL FOR WINDING PAPER.

No. 411,140.

Patented Sept. 17, 1889.

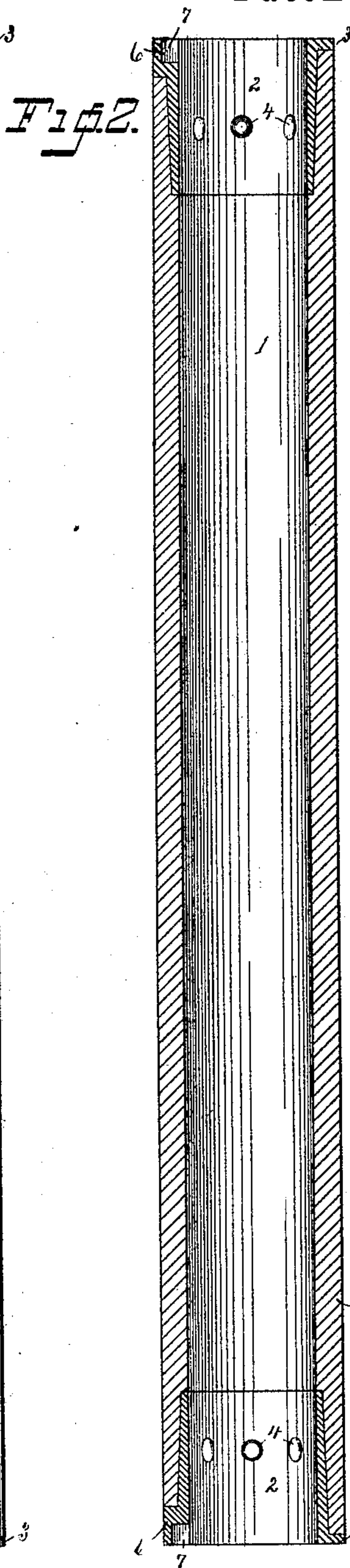
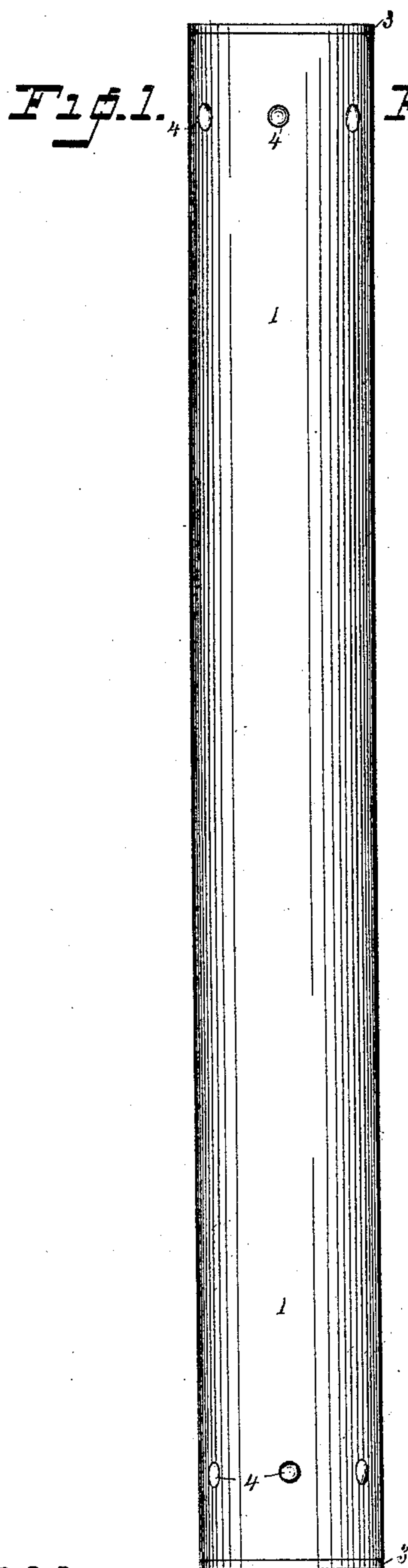


Fig. 4.

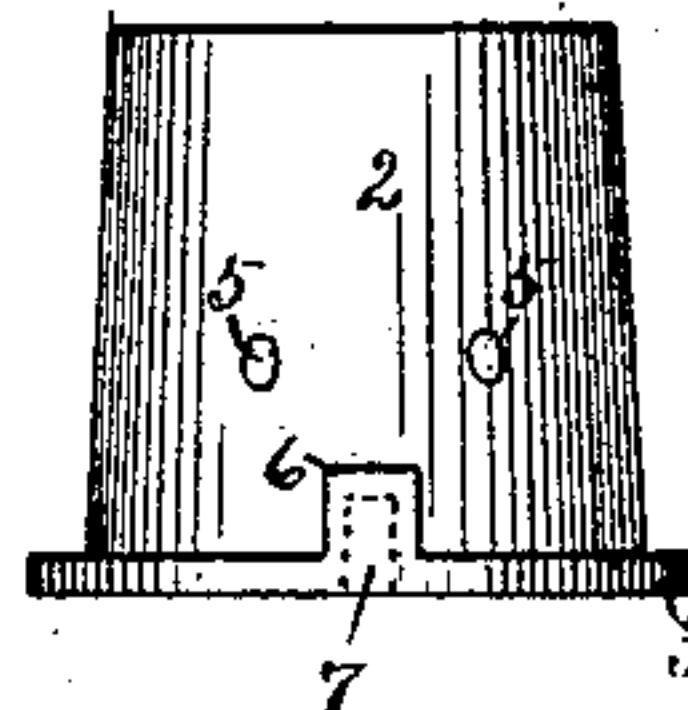
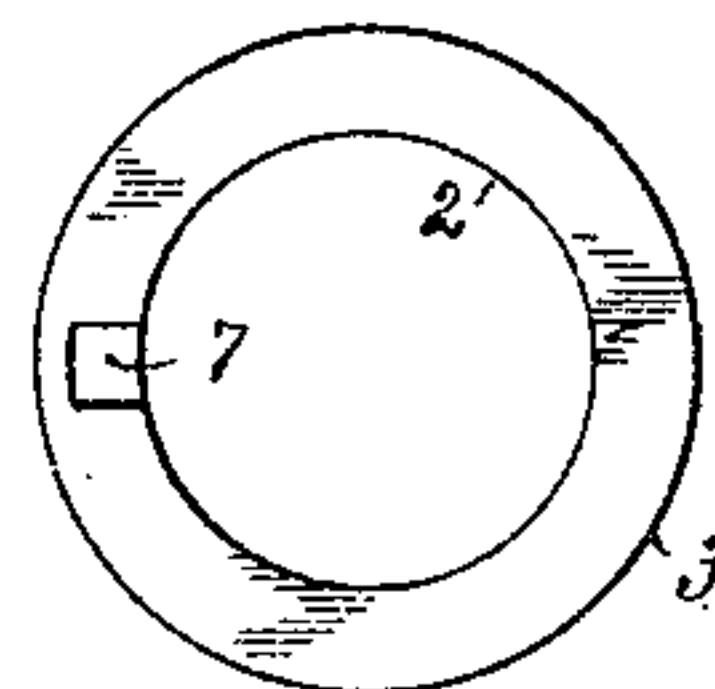


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SHELL FOR WINDING PAPER.

SPECIFICATION forming part of Letters Patent No. 411,140, dated September 17, 1889.

Application filed November 10, 1888. Serial No. 290,410. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. FARRINGTON and NELSON CURTIS, citizens of the United States, residing at Bridgeport, in the
5 county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Shells for Winding Paper; and we do hereby declare the following to be a
10 full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has for its object to produce a shell or spool for winding paper from a
15 per-machine in manufacturing, or for rewinding on supercalenders, printing-presses, and all other places where paper is used from a roll. Shells or spools for this purpose have heretofore been made from wood or metal.
20 Our improved shells are very much cheaper than either metal or wood, and are practically indestructible. It will of course be understood that rolls of paper as formed for printing-presses are several feet in diameter and
25 are very heavy. It will be apparent, therefore, that unless both the internal circumference and the periphery of the shell are perfect circles and perfectly concentric with each other serious trouble and loss must result
30 both in winding and unwinding the paper. The objections to the use of wooden shells are those inherent in the material—for example, the liability to warp, twist, split, swell, and shrink. These objections have been found
35 so serious in practice that wooden shells have been practically displaced by cast-iron shells. The objections to cast-iron shells are, first, their great weight, which adds to the inconvenience in handling and greatly increases
40 the freight in both directions, it being understood, of course, that the shells, after being emptied, are returned to the mill and used over and over until worn out, and, secondly, the liability of the ends to become injured by
45 the rough usage to which they are subjected in transportation, the trouble arising from the fact that the edges of the shells get chipped off and broken in, rendering it impossible to secure them firmly on the shaft of a press or
50 other machine when held by cones, and the

edges of the notches get broken away, so that the shells cannot be firmly secured when they are held by keys or splines, any breaking out of the ends causing the rolls to run out of true. In order to overcome these objections
55 and to provide a shell which may be made of any required diameter with but little increase in weight, which will not warp, split, or twist, and which shall be so constructed as to stand an almost unlimited amount of hard usage,
60 we have devised the novel shell of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to denote the several
65 parts.

Figure 1 is an elevation of a shell complete; Fig. 2, a longitudinal section thereof; Fig. 3, an end view, and Fig. 4 an elevation of the hub detached.

1 denotes the body of the shell, which is
70 made of paper wound tight upon a perfectly round shaft and cemented together under pressure as it is wound. In this manner we are enabled to make solid and firm bodies of any required diameter or length and capable
75 of supporting any length of paper that can possibly be wound upon them. The ends of these shells we protect by metallic hubs or bushings 2, having flanges 3. The interior of these hubs is turned out so as to be perfectly
80 concentric and of even diameter with the interior of the shell, thereby avoiding the danger of breakage of the paper when being unwound from the shell at high velocity, and the flanges are made the exact diameter of
85 the periphery of the shell. The exteriors of the hubs taper slightly, and they are driven firmly in at the ends of the shell, and are secured in any suitable manner, preferably by
90 rivets 4, passing through the body of the shell and through holes 5 in the hubs. Our improved shells are held in place upon a printing-press or other frame-work in any suitable
95 manner—as, for example, by placing the shell upon a shaft and driving cones in at both ends, thus wedging it to the shaft. As these cones have long been in common use and form no portion of our invention, they have not been illustrated in the drawings.

Another common way of fastening the shells 100

upon a shaft is by means of keys or splines engaging the shaft and also a notch in the shell. In order to provide for this means of attachment, we form an enlargement 6 upon
5 the outside of each hub just under the flange, and in this enlargement we form a notch or groove 7, to receive the key or spline. A novel and important feature of this portion of our invention is that the notch to receive the key
10 or spline is made in solid metal—that is, covered—so that the key itself does not come in contact with the body of the shell, enlargement 6, however, being firmly embedded therein. Any suitable metal may be used for
15 the hubs. We preferably, however, make them either of malleable iron or steel, as we find in practice that either of these metals will stand the hard usage to which the rolls are necessarily subjected, and will not, under
20 ordinary circumstances, break out at the ends.

Having thus described our invention, we claim—

1. As a new manufacture, a shell for winding paper, consisting of a body formed of paper cemented together under pressure and
25 protected at the ends by flanged metallic bushings, said bushings being concentric and of even internal diameter with the shell and the flanges of even peripheral diameter therewith.

2. A shell for winding paper, consisting of a body formed of paper wound and cemented together under pressure and protected at the
30 ends by flanged metallic hubs, each hub having an enlargement under the flange, and a
35 groove in said enlargement to receive a key in securing the shell in place upon the shaft.

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

GEORGE B. FARRINGTON.

NELSON CURTIS.

Witnesses:

A. M. WOOSTER,

L. F. CARSTENSEN.