R. F. Sturges.

Rollers for Print'g Fabrics.

No. 17239. Patented May 5. 1857.

Fig. 3.

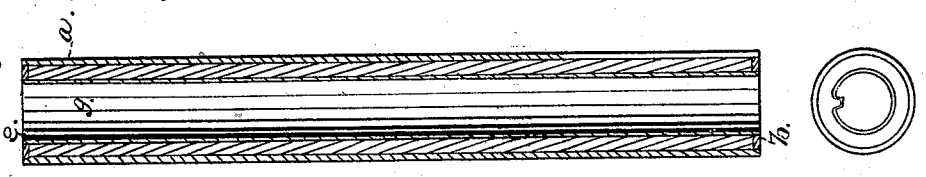


Fig. 2.

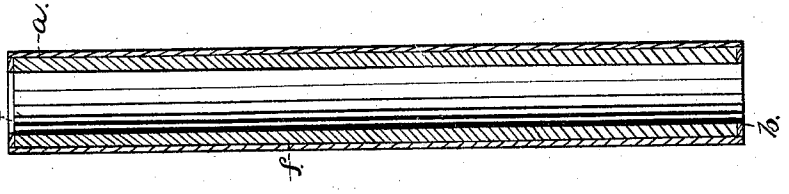
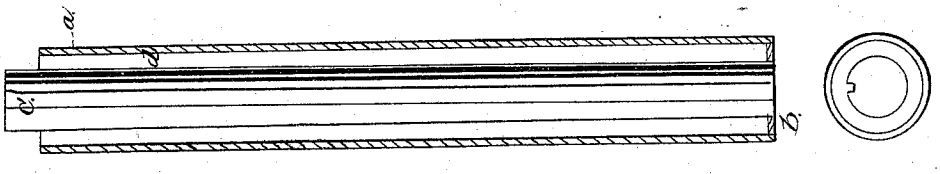


Fig. 1.



UNITED STATES PATENT OFFICE.

RICHARD FORD STURGES, OF BIRMINGHAM, ENGLAND.

MODE OF CONSTRUCTING ROLLERS OR CYLINDERS FOR PRINTING FABRICS.

Specification of Letters Patent No. 17,239, dated May 5, 1857.

To all whom it may concern:

Be it known that I, RICHARD FORD STURGES, of Birmingham, in the county of Warwick, England, manufacturer, a subject of the Queen of Great Britain, have invented or discovered a new and useful invention of a new and Improved Manufacture of Rollers or Cylinders for Printing Fabrics; and I, the said RICHARD FORD STURGES, do hereby declare that the nature of my said invention and in what manner the same is to be performed are particularly described and ascertained in and by the following statement thereof—that is to say—

My invention consists of the method or methods hereinafter particularly explained and illustrated in the accompanying drawing of manufacturing rollers or cylinders for printing fabrics.

In carrying my invention into effect I take a tube or hollow cylinder of copper or suitable alloy of copper represented in vertical section at *a* Figure 1, the said tube *a* being of somewhat greater external diameter than that it is intended the finished roller shall have. The said tube *a* is of the length which it is intended the finished roller shall have. The thickness of the metal of the tube *a* may be about a quarter of an inch but I do not limit myself to any particular thickness. The internal surface of the tube *a* is tinned or coated with any easily fusible metal or alloy which will readily attach or alloy itself with the copper or alloy of which the said tube *a* is made. I place in the bottom of the tube *a* a ring of copper or brass *b* the upper surface of the said ring having been previously tinned or coated with an easily fusible metal or alloy. I place a rod or mandrel *c* in the axis of the tube *a* the lower end of the rod *c* fitting the hole in the ring *b* and the upper end being held securely in any convenient manner. The rod or mandrel *c* being thus temporarily fixed concentric with the tube *a* I pour into the annular space *d* between the tube *a* and rod or mandrel *c* fused zinc or such other metal or alloy as hereinafter described. When the annular space *d* has been filled with the fused metal or alloy I take a ring similar to the ring *b* and having its under surface tinned or coated with an easily fusible metal or alloy. I drop the said ring over the top of the rod or mandrel *c* and cause it to lie flat upon the surface of the fused metal the said ring closing up the top of the annular space occupied by the fused metal. The position of the last described ring will be best understood by reference to Fig. 2, where the said ring is marked *e* and by which said figure it will be seen that the ring enters and lies flush with the end of the tube *a*.

The rod or mandrel *c* is not quite cylindrical but is tapered slightly so that when the metal poured between it and the tube *a* has cooled the said mandrel *c* may be withdrawn.

Fig. 2 represents in vertical section the roller or cylinder formed by the process described. The letters *a* and *b* represent the same parts in Fig. 2 as in Fig. 1. The metal or alloy which has been cast in the tube *a* is marked *f* in Fig. 2, and the ring closing the upper end of the roller or cylinder is marked *e* in the said Fig. 2. The roller or cylinder Fig. 2 may be finished by the ordinary method of finishing rollers or cylinders for printing fabrics.

I sometimes carry my invention into effect in the manner illustrated in the section Fig. 3 that is to say instead of the rod or mandrel *c* Fig. 1 I insert a tube *g* of iron or other metal which does not readily fuse in the axis of the cylinder *a*. The fused metal is poured in the space between the two tubes *g* and *a* Fig. 3 the ends of the annular space containing the said fused metal being closed by the rings *b*, *e*, in a manner which will be understood from the description hereinbefore given with reference to Figs. 1 and 2. The tube *g* is not withdrawn but remains permanently fixed in the roller.

I do not confine myself to the use of any particular metal or alloy in filling the space between the tube *a* and mandrel *c* or tube *g* as any easily fused metal may be employed which is uncostly and sufficiently hard to bear the pressure to which the roller has to be subjected. I have found in practice that zinc and alloys composed mainly of zinc answer very well but I prefer the alloy called type metal the said alloy being very hard and by its expansion in cooling producing a very sound casting. The said type metal is an article of commerce and its composition being well known I do not think it necessary here to describe its composition.

Having now described the nature of my said invention and the manner of carrying the same into effect I wish it to be understood that I do not limit myself to the precise details herein described and represent-

ed as the same may be varied without departing from the nature of my said invention. But

I claim as my invention—

The new or improved manufacture of rollers or cylinders for printing fabrics hereinbefore described, that is to say, casting a thick tube of a hard and easily fusible metal or alloy in the interior of a tube of copper or alloy of copper.

RICHARD FORD STURGES.

Witnesses:

GEORGE SHAW,

RICHARD SKERRETT.