

S. Fox.  
Umbrella.

N<sup>o</sup> 9,725.

Patented May 17, 1853.

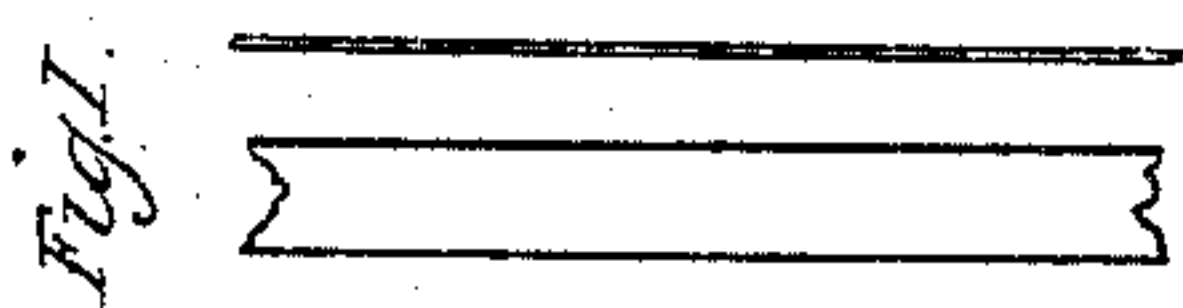
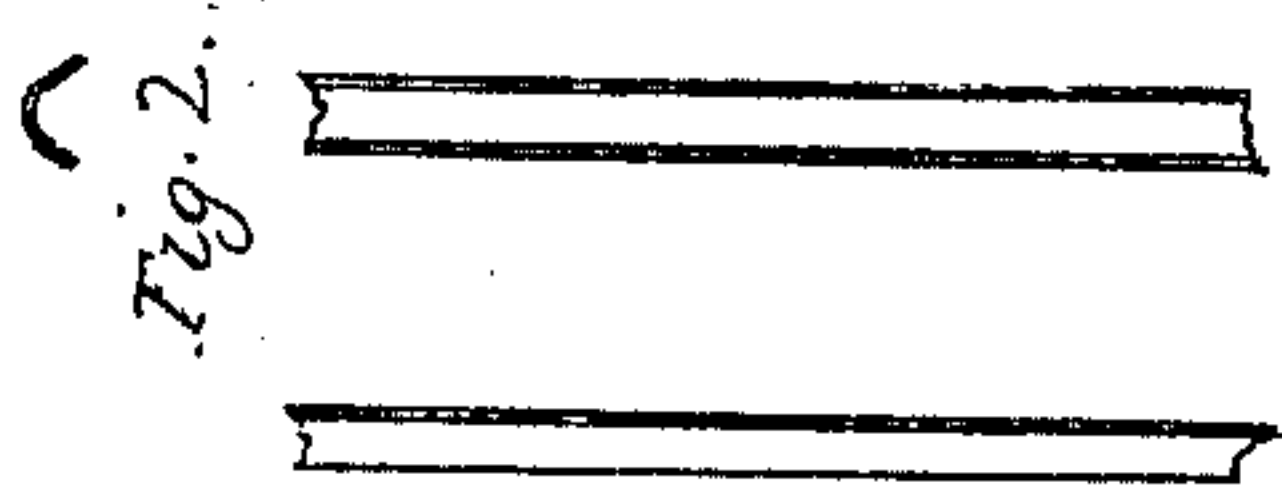
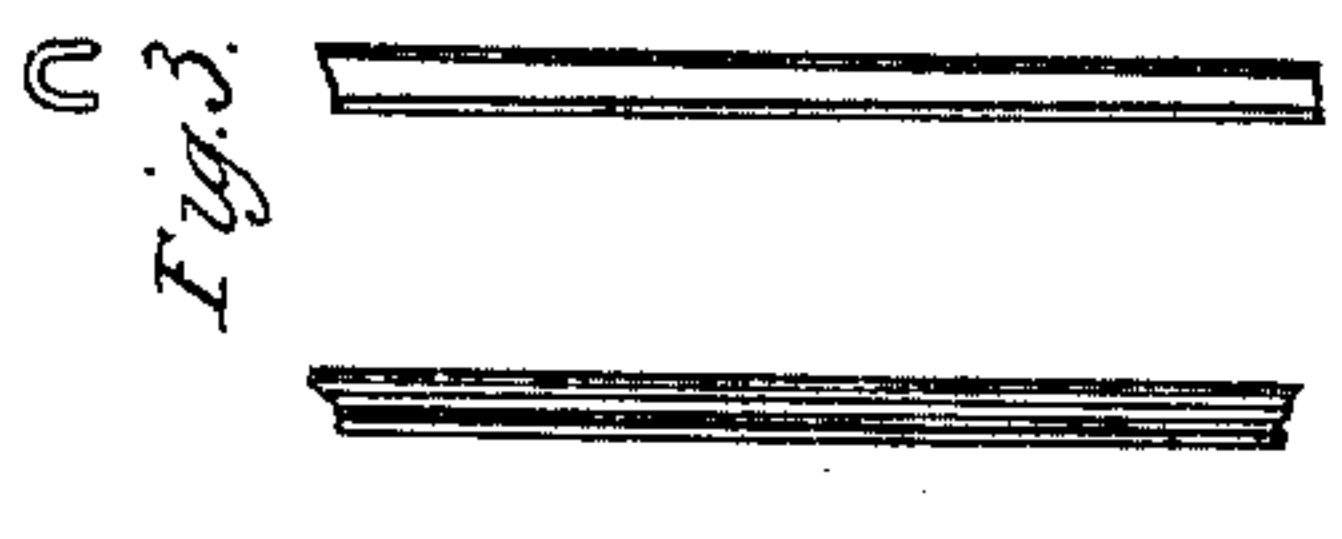
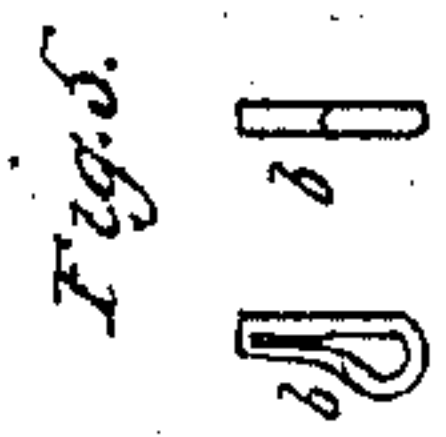
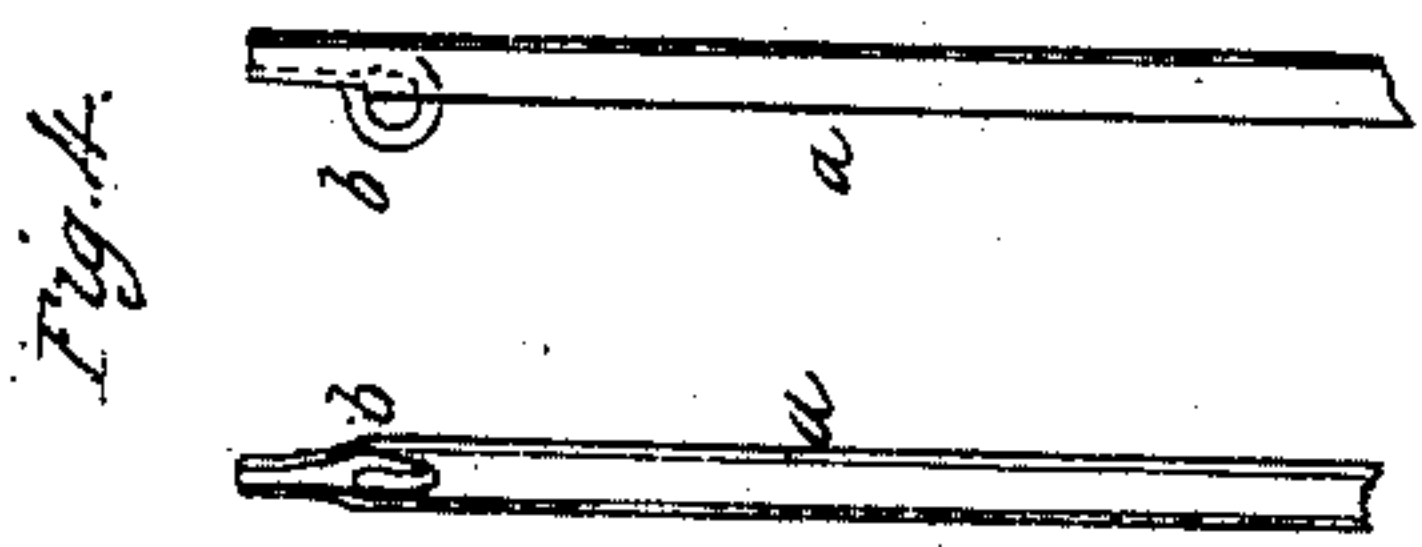
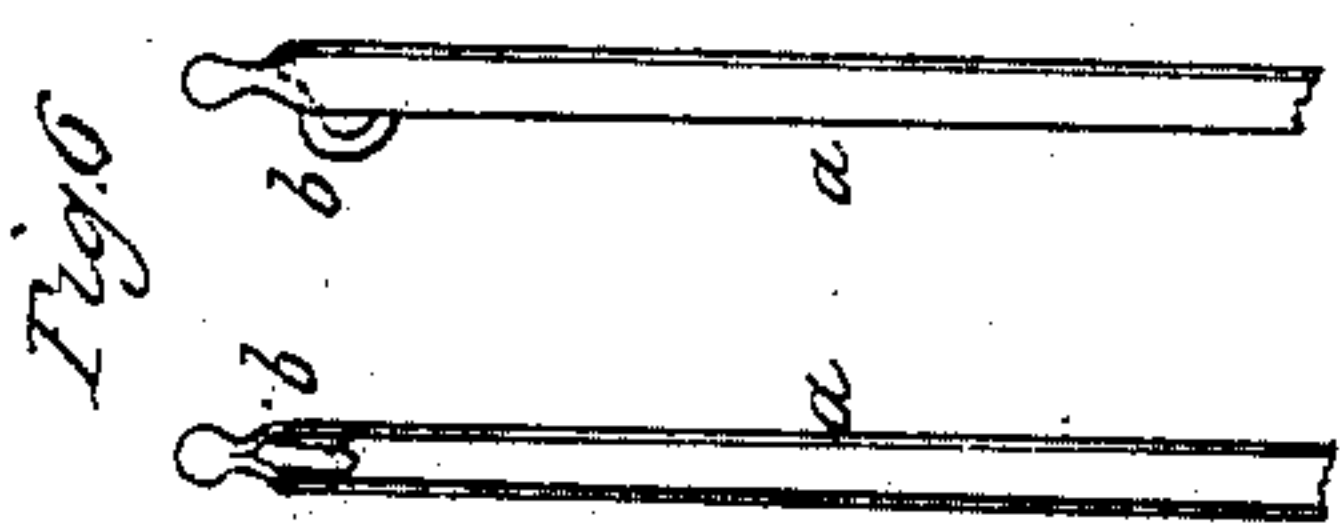
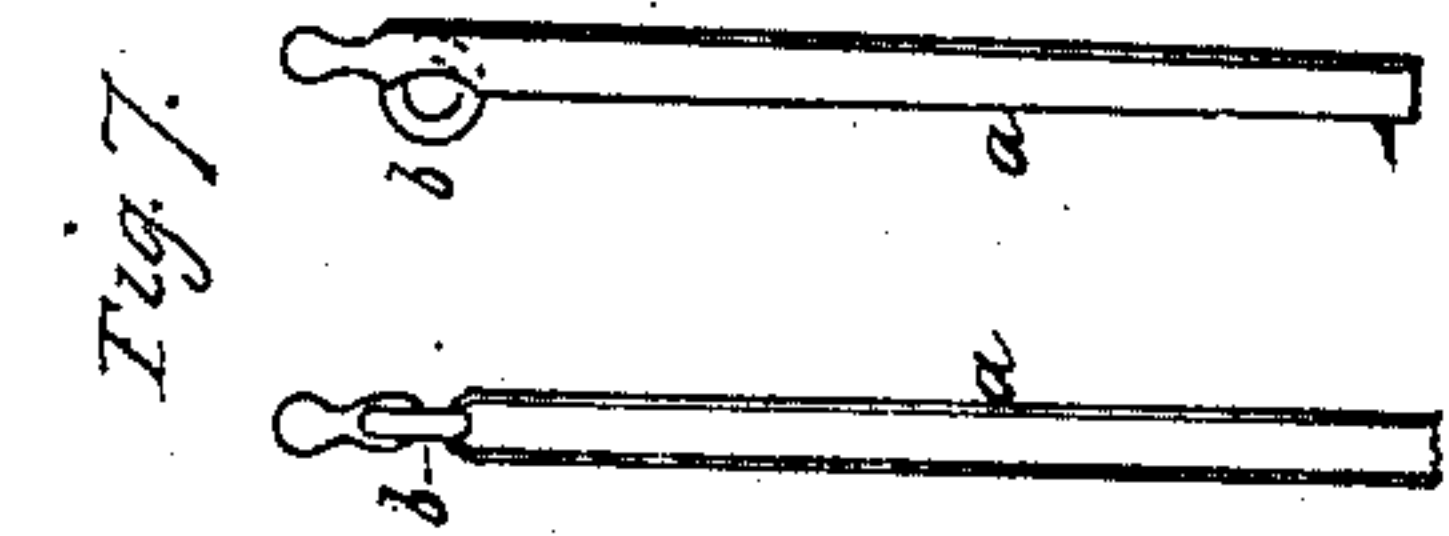


Fig. 8.

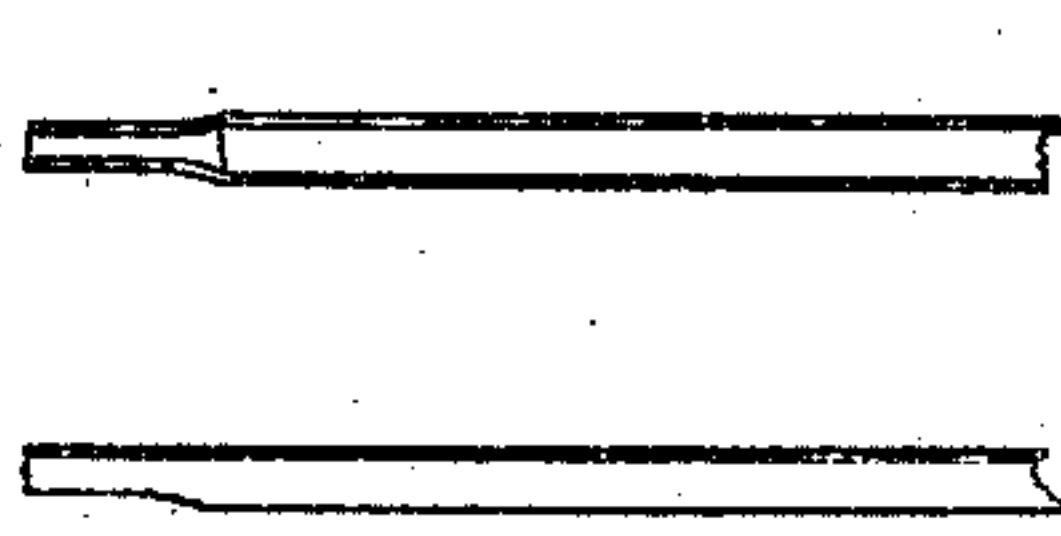


Fig. 13.

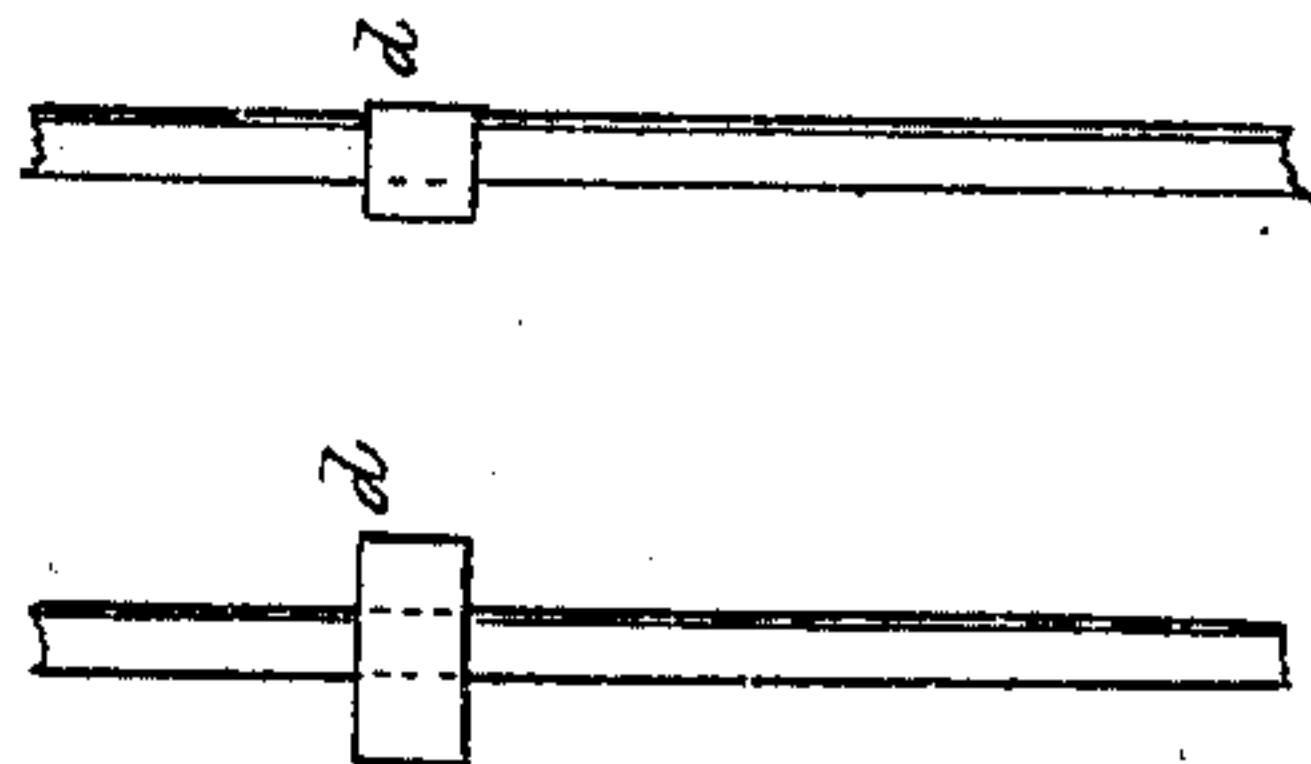


Fig. 10.

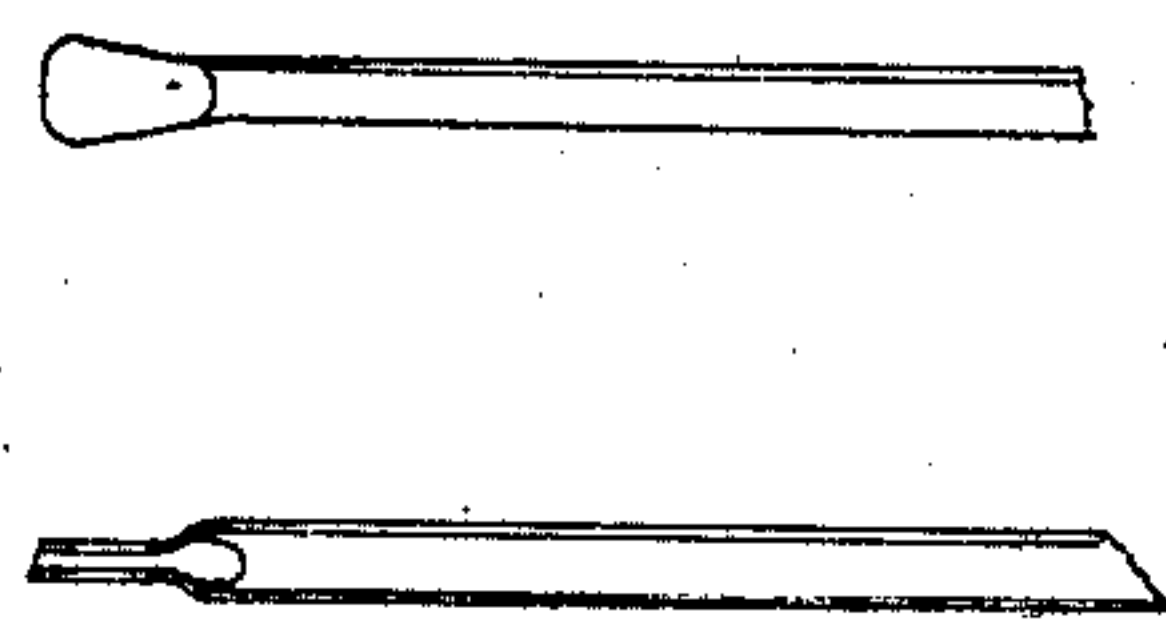


Fig. 15.

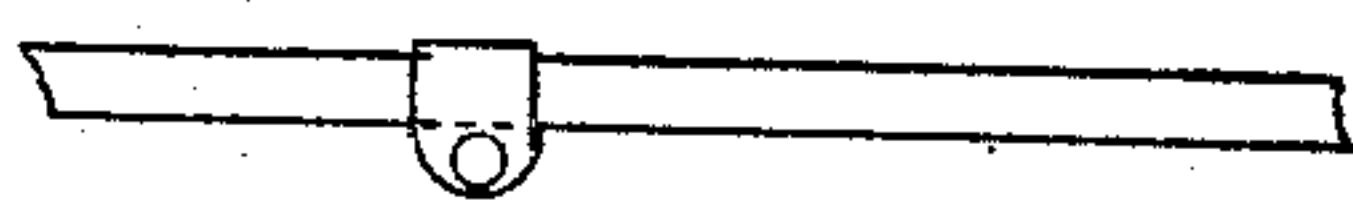


Fig. 12.



Fig. 11.

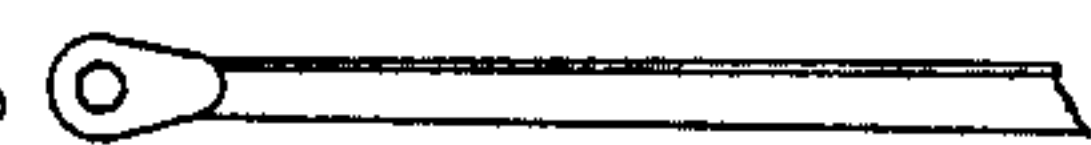
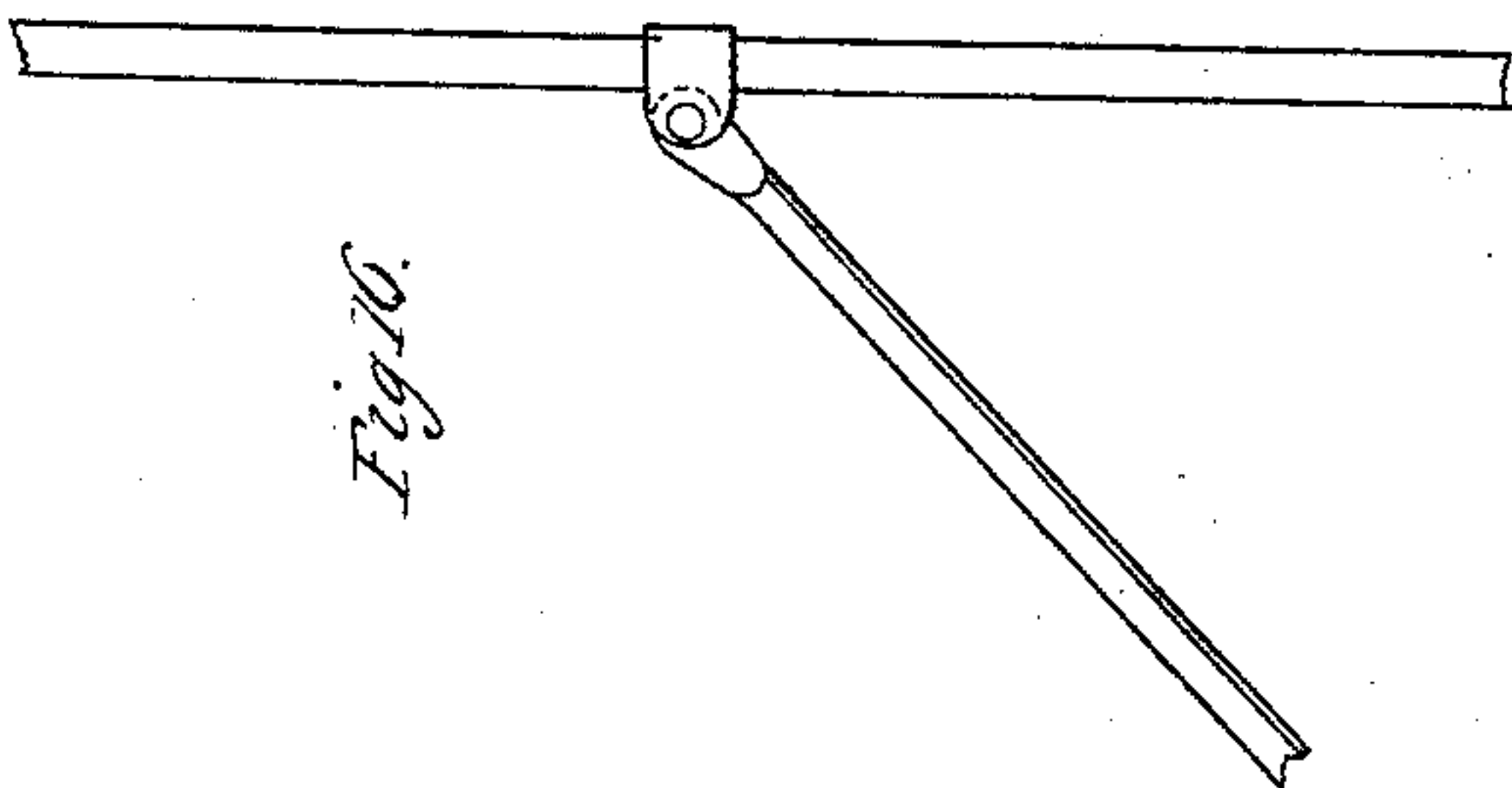


Fig. 16.



# UNITED STATES PATENT OFFICE.

SAMUEL FOX, OF SHEFFIELD, ENGLAND.

## UMBRELLA AND PARASOL.

Specification of Letters Patent No. 9,725, dated May 17, 1853.

*To all whom it may concern:*

Be it known that I, SAMUEL FOX, of Stocks Bridge Works Deepcar, near Sheffield, England, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Umbrellas and Parasols; and I, the said SAMUEL FOX, do hereby declare that the nature of my said invention and the manner in which the same is to be performed are fully described and ascertained in and by the following statement thereof, reference being had to the drawing hereunto annexed and to the figures and letters marked thereon—that is to say:

Figure 1 shows a portion of a narrow fillet or sheet of steel such as I employ. Fig. 2 shows a like fillet or narrow strip of steel plate partially bent into a trough-like form and this bending I perform by rollers one having a groove around it and the other a corresponding projection so that by passing a narrow fillet or sheet of steel through between such rollers the same is bent into the form shown. Fig. 3 shows the metal as having been further bent by passing it between another groove and a corresponding projection in another pair of rollers and it is this shape that I employ the steel in making the ribs and stretchers of umbrellas and parasols whereby I obtain great strength and lightness.

I would remark that I am aware that solid ribs and stretchers of steel and also stretchers and ribs of steel tubes have heretofore been used in the making of umbrellas and parasols, but not with such advantage as results from the use of open trough-like ribs and stretchers of steel or it may be other material according to my invention. The strength of the metal ribs will vary according to the size, length and strength desired for particular sizes of umbrellas and parasols. In making ribs of twenty-six inches long I have employed steel wire of No. 13 wire gage and having annealed the wire I pass it between a pair of plain rolls and make it flat thus producing narrow strips or fillets bringing it to a width of about No. 6 of the wire gage. Before passing such narrow strips or fillets through between the rolls above mentioned for producing the open trough-like form I anneal them—and having produced the trough-like form I again anneal the metal and having straightened the length I cut off the sizes for ribs and stretchers. If heavier and stronger ribs

be desired whether for the same sizes or otherwise I use thicker wire and produce thicker and wider fillets or strips and when lighter and weaker ribs and stretchers are desired I employ a less size of wire and roll it into less thickness and width of strips.

Having obtained the suitable lengths of trough-like metal as above explained I proceed to make them up into ribs and stretchers and this I prefer to do in the following manner:—Fig. 4 shows two views of the lower end of a rib the sides of which have been somewhat pressed toward each other by means of tools in a fly or other press. Into the end of the rib *a* is then introduced the wire eye *b* shown separately at Fig. 5. The rib is then subjected to a second pair of tools in a suitable press by which the edges of the metal are shut and a knob or proper tip form is given to the end as is shown at Fig. 6. This end of the rib is then submitted to another pair of tools to press in the sides so as to close them into the eye as shown at Fig. 7.

In order to form the other end of a rib so as to render it suitable for entering the top notch I cause the sides to be flattened between a pair of tools shown at Fig. 8 a small piece of steel or other metal *c* having been introduced and the end is again subjected to pressure between a pair of tools by which it is caused to assume the form Fig. 9 and by means of a file the end is to be rounded off as shown at Fig. 10 and a hole is to be pierced as shown at Fig. 11. In order to obtain a convenient means of connecting a rib to a stretcher I apply a plate or strip of metal *d* Fig. 12 which being bent into the form shown I place within it a rib and then by placing these parts between a pair of pressing tools or otherwise I bend the plate into the form shown at Fig. 13 and then by means of a pair of tools I raise the side and force the ends of the plate of metal *d* tightly into the trough as shown at Fig. 14, after which the projections are to be perforated as shown at Fig. 15 and the stretcher is to be pin-jointed to it as shown at Fig. 16. The ribs and stretchers are hardened and tempered before affixing the plate *d* for connecting them together.

I would remark that I have not thought it necessary in the drawing to show the rolls or the pressing tools as their construction will at once be understood from the forms



of metal produced thereby and which are shown in the drawing. In making the stretchers of open trough like metal I make the two ends alike and similar to what has  
5 been above described in respect to the ends of the ribs.

Having thus described my invention or the manner of performing the same I would have it understood that I do not claim the  
10 bending or corrugating a metallic plate or bar for the purpose of imparting strength thereto. But

What I claim is—

The improvement in the manufacture of  
15 umbrellas and parasols herein described the

same consisting in making them with ribs and stretchers of plate steel bent in the trough-like shape as specified in combination with eyes and connections applied essentially as described whereby they are  
20 rendered comparatively much lighter than and still possess all the requisite strength of those made with solid or round rods of metal in the ordinary way, and at the same time the formation of the eyes and connec-  
25 tions is facilitated.

SAML. FOX.

Signed in the presence of—

CHARLES A. BRANSON,  
HUGH S. FERNS.