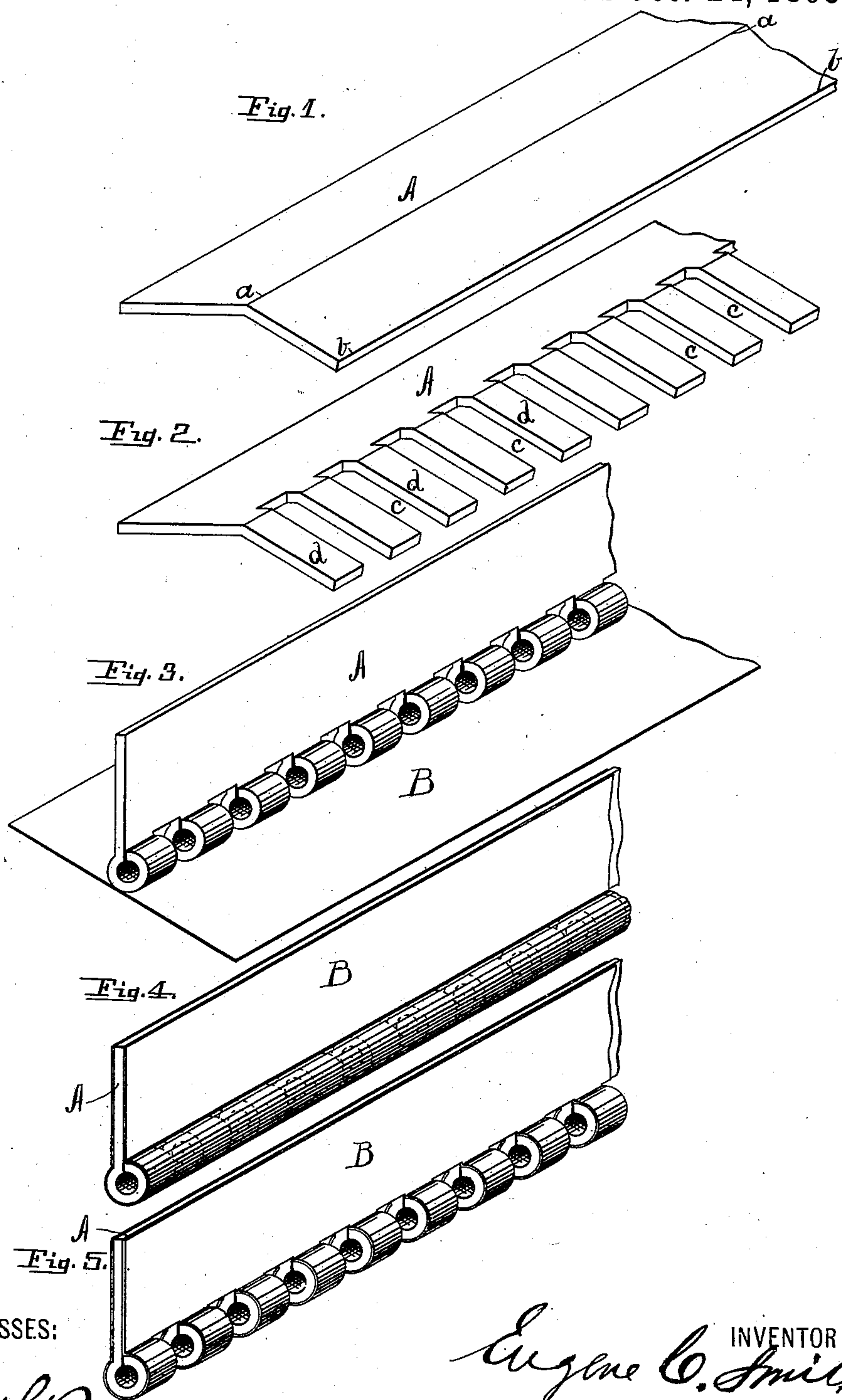


(No Model.)

E. C. SMITH.  
STRUCTURAL BLANK FOR HINGE BUTTS.

No. 507,336.

Patented Oct. 24, 1893.



WITNESSES:

Arthur L. Hunt  
M. Elizabeth Finley

Eugene C. Smith INVENTOR  
BY  
D. Walter Brown ATTORNEY



# UNITED STATES PATENT OFFICE.

EUGENE C. SMITH, OF NEW YORK, N. Y.

## STRUCTURAL BLANK FOR HINGE-BUTTS.

SPECIFICATION forming part of Letters Patent No. 507,336, dated October 24, 1893.

Application filed July 20, 1892. Serial No. 440,713. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE C. SMITH, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Structural Blanks for Hinge-Butts and Methods of Making the Same, of which the following is a specification.

My invention relates to improvements in structural blanks for hinge butts and methods of making the same, and the object of my invention is to cheaply and expeditiously produce a hinge butt having all the requisites of durability and finish of the better grades of hinges, but at much less cost. I accomplish this result by making my blanks composite, that is to say, containing an internal resistible metal, of low cost, which is therefore at once cheap and durable, and will offer both rigidity to the leaves and wearing quality to the knuckles of the hinges, and this internal metal is covered with a non-corrosive metal which is capable of taking a high polish or finish.

In carrying out my invention I take a long sheet or strip of some wear-resisting metal, preferably a cheap grade of steel, and first punch or mill out spaces so as to form ribs, that are preferably all of equal width, and spaced equally apart a distance equal to the width of said ribs measured parallel to the length of the sheet. The said ribs are to form the knuckles of the hinge. Then I bend somewhat back about forty-five degrees the said sheet on the line just passing along the inner ends of said ribs, or of course the order of said steps may be changed, and the sheet may be bent back first and punched or milled afterward. Then the sheet including the ribs is covered all over with a flux, tin, or any welding agent and said ribs are folded by any well known means, as around a mandrel, cylindrically forward, that is opposite to the first bend, so that said ribs now form cylindrical knuckles. Then a rather thin sheet of some non-corrosive metal, as brass, in area equal to the area of the outside of said folded steel sheet, is laid against the said steel sheet, and by means analogous to drawing metal butts is folded all over said steel sheet, knuckles and all. Then by first heating in suitable furnaces and afterward rolling in

suitable rolls the two sheets will be soldered or brazed together by the agent which was previously put on the steel sheet, and there will result a composite blank consisting of an internal resistible sheet of steel or other non-resisting metal comparatively cheap, but of great wearing quality, and of an external covering of brass or other non-corrosive metal which will take a high finish and polish.

Referring to the drawings to explain my invention, Figure 1 shows a strip of resistible metal with the first bending. Fig. 2 shows the same perforated so as to form the ribs that will afterward be folded into knuckles. Fig. 3 shows the sheet after the knuckles are formed, and the sheet of non-corrosive metal against the back of the same. Fig. 4 shows the non-corrosive sheet folded around the inner sheet, but not yet perforated. Fig. 5 shows the finished blank.

The long strip, A, preferably of steel, is first bent longitudinally by any suitable machinery along a line *a-a* parallel to the edges of the sheet A, and sufficiently far from the edges, *b, b*, that the bent part shall be competent to form the cylinder of the knuckles. After being so bent, said sheet, A, is perforated by milling or punching with spaces *c, c*, forming ribs, *d, d*, which are preferably of equal width each to each, and spaced equally apart, a distance equal to the width of said ribs. Then the whole sheet on both sides, is covered with any suitable flux or soldering agent, as tin or solder, and the ribs, *d, d*, are folded in any suitable and known manner as around a mandrel into cylindrical knuckles as seen in Fig. 3. This folding of the ribs will be forward, that is opposite to the first bend, and the purpose and the result of said first bend is to permit truly cylindrical knuckles to be formed and which will project a little beyond the rear face of the sheet, A, so that when the hinge is completed butts will close properly. Now a sheet, B, of any non-corrosive metal, as brass, preferably rather thin, and as long as sheet, A, and wide enough to completely envelop the same is applied thereto in proper position, and having been first covered with said flux or soldering agent, by any suitable means as by drawing both the sheets A and B through dies, the sheet B, is folded over the sheet A, as in Fig. 4. Then



the compound sheet is heated to melt the soldering agent and rolled to set the same, thereby firmly soldering or brazing the said sheets A and B together; and finally the sheet B is milled out coincident to the intervals between the knuckles that were formed in the sheet A, as hereinbefore described. Now the blank is ready for polishing, drilling and the other operations preparatory to cutting it into hinge butts.

Now, having described my improvement, I claim as my invention—

1. A structural blank for hinges, consisting of a body blank with folded knuckles and a covering sheet soldered thereto and covering the said body blank knuckles and spaces between the knuckles, substantially as described.

2. The method of manufacturing sheet metal blanks, hereinbefore set forth, to wit: first bending longitudinally a long sheet of metal to form the body blank, forming knuckles at intervals thereon, folding over the body blank the knuckles and the spaces between a metal sheet with solder between the parts, melting the solder under pressure, and finally milling out the covering sheet and edges of the knuckles.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 14th day of June, 1892.

EUGENE C. SMITH.

Witnesses:

M. ELIZABETH FINLEY,  
ARTHUR L. KENT.