

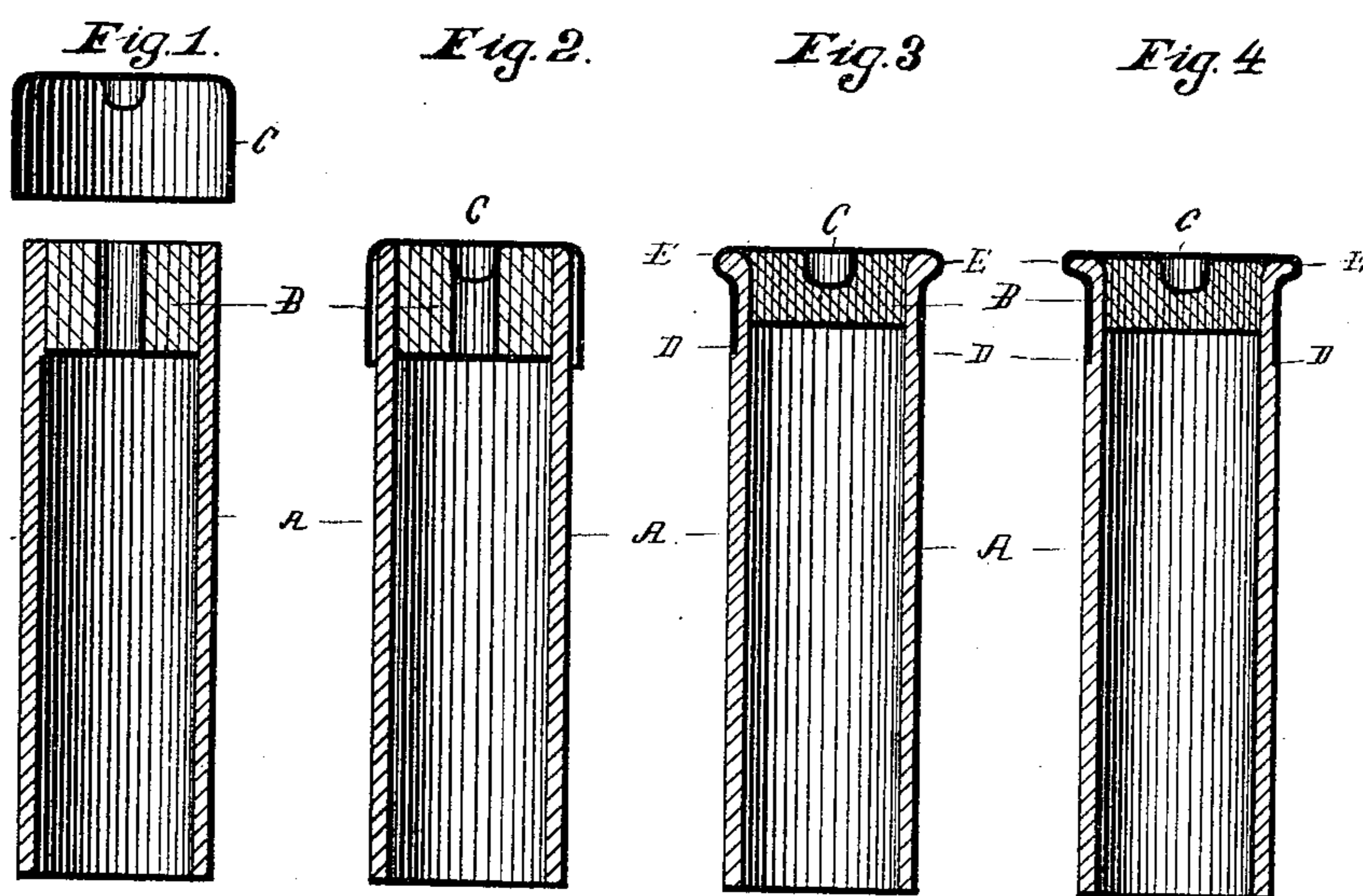
(No Model.)

A. DICKERMAN.

METHOD OF HEADING PAPER CARTRIDGE SHELLS.

No. 347,166.

Patented Aug. 10, 1886.



WITNESSES:

*E. H. Rogers*  
*M. S. Suley*

INVENTOR

*Amos Dickerman*  
BY *Geo. W. Seymour*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

AMOS DICKERMAN, OF NEW HAVEN, CONNECTICUT.

## METHOD OF HEADING PAPER CARTRIDGE-SHELLS.

SPECIFICATION forming part of Letters Patent No. 347,166, dated August 10, 1886.

Application filed June 5, 1885. Serial No. 167,705. (No model.)

*To all whom it may concern:*

Be it known that I, AMOS DICKERMAN, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Paper Cartridge-Shells; and in the art of making them; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

Heretofore in making paper cartridge-shells the flanges of the metallic heads of the shells have been produced in several ways, involving either upsetting or expanding the heads. Under these processes the uniformity of the flanges has depended upon uniformity in the thickness of the tubes, in the bulk and density of the wads, and in the texture of the heads; and it being practically impossible to fulfill these conditions, it has followed that the percentage of shells having imperfect flanges has been very large. Under these processes, also, and on account of the size of the heads employed, it is necessary to crimp or otherwise temporarily reduce the size of the tubes, to permit them to be assembled with the heads, whereby the tubes are often distorted and right assembling prevented, and hence uniformity in the length of the shells destroyed. Therefore under the old processes many imperfect shells are produced at a loss, and the available shells often lack that exactness of proportion which this class of goods demand. Furthermore, shells having their flanges produced by expansion are objectionable, in being weakened at the very point of the greatest explosive strain. Moreover, these old processes are further objectionable, on account of the time, labor, and apparatus involved in their prosecution.

My invention relates to an improvement in the art of making paper cartridge-shells, the object being to avoid the objections incident to the old processes and product, as above enumerated, and to produce at a reduced outlay for time, labor, and apparatus, and with the maximum percentage of perfect shells, an article which shall be uniform in all its dimensions, and re-enforced at the point exposed to greatest effect of the explosion of the charge.

With these ends in view my invention

comprehends an improvement in the art of making paper cartridge-shells, consisting in forming the heads of the shells larger than the tubes thereof, and then reducing them by externally-applied pressure to fit the tubes and to develop their flanges, first assembling the heads and tubes, then reducing the heads onto the tubes, whereby they are fitted and secured thereto and their flanges developed, and forcing the confined edges of the tubes into the open flanges, which are then closed and clamped upon the said edges of the tubes.

My invention further consists in certain other details in the process, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in vertical longitudinal section of a head and tube in position for being assembled. Fig. 2 is a similar view showing the right assembling of such head and tube. Fig. 3 is a similar view showing the reduction of the head onto the tube, the developed flange, the compressed wad, and the confined edges of the tube, as forced out into the flange; and Fig. 4 is a similar view showing the flange after being closed and clamped upon the said edges of the tube.

In practicing my invention in the manner illustrated by the drawings a plain or uncrimped paper tube, A, provided with a wad, B, and a plain metallic head or cup, C, adapted in size to fit loosely over the tube, are assembled, and preferably positively or under sufficient pressure to insure a perfect contact between the confined edges of the tube and the inner face of the closed end of the head. Then the body or main portion of the head is reduced, contracted, or drawn on by externally-applied pressure to the tube, as at D. Thereby it is fitted and secured thereto, and the flange E developed. Then the confined edges of the tube are forced or crowded out into the open flange by compression of the wad. Then the flange is closed and clamped upon the said edges of the shell.

Under the described process practical uniformity is secured in the flanges, as their proper development is in no way dependent upon the thickness of the tubes, the bulk and density of the wads, nor upon the texture of the heads, which may be softer in one place than in another. Moreover, the reduction of

the heads, as described, forces the metal toward the flanges, and thus re-enforces the heads at such point. Furthermore, by employing heads fitting loosely over the tubes right assembling, and hence uniformity in the length of the shell, is secured, and the expense of crimping or otherwise temporarily reducing the size of the tubes is avoided. Therefore under my improved process the maximum of perfect shells is secured. Again, under my process the assembling of the heads and tubes, the reduction of the heads onto the same, and the compression of the wads and the forcing of the confined edges of the tubes out into the open flanges may be done in the progression named in a single apparatus, and without manual interference. It will thus be seen that under my invention the outlay for time, labor, and apparatus is reduced to the minimum.

20 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As an improvement in the art of making paper cartridge-shells, first assembling the

heads and tubes, then reducing the heads onto the tubes, whereby they are fitted thereto and their flanges developed, and forcing the confined edges of the tubes out into the open flanges, which are then closed and clamped upon the said edges of the tubes, substantially as set forth. 25 30

2. As an improvement in the art of making paper cartridge-shells, first positively assembling the heads and tubes, then reducing the heads onto the tubes by externally-applied pressure, whereby they are fitted thereto and the flanges developed, and forcing the confined edges of the tubes out into the open flanges, which are then closed and clamped upon the said edges of the tubes, substantially as set forth. 35 40

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

AMOS DICKERMAN.

Witnesses:

E. H. ROGERS,  
M. S. SEELEY.