No. 816,637. PATENTED APR. 3, 1906.

W. BAXTER, JR.

TYPE WRITER.

APPLICATION FILED FEB. 6, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

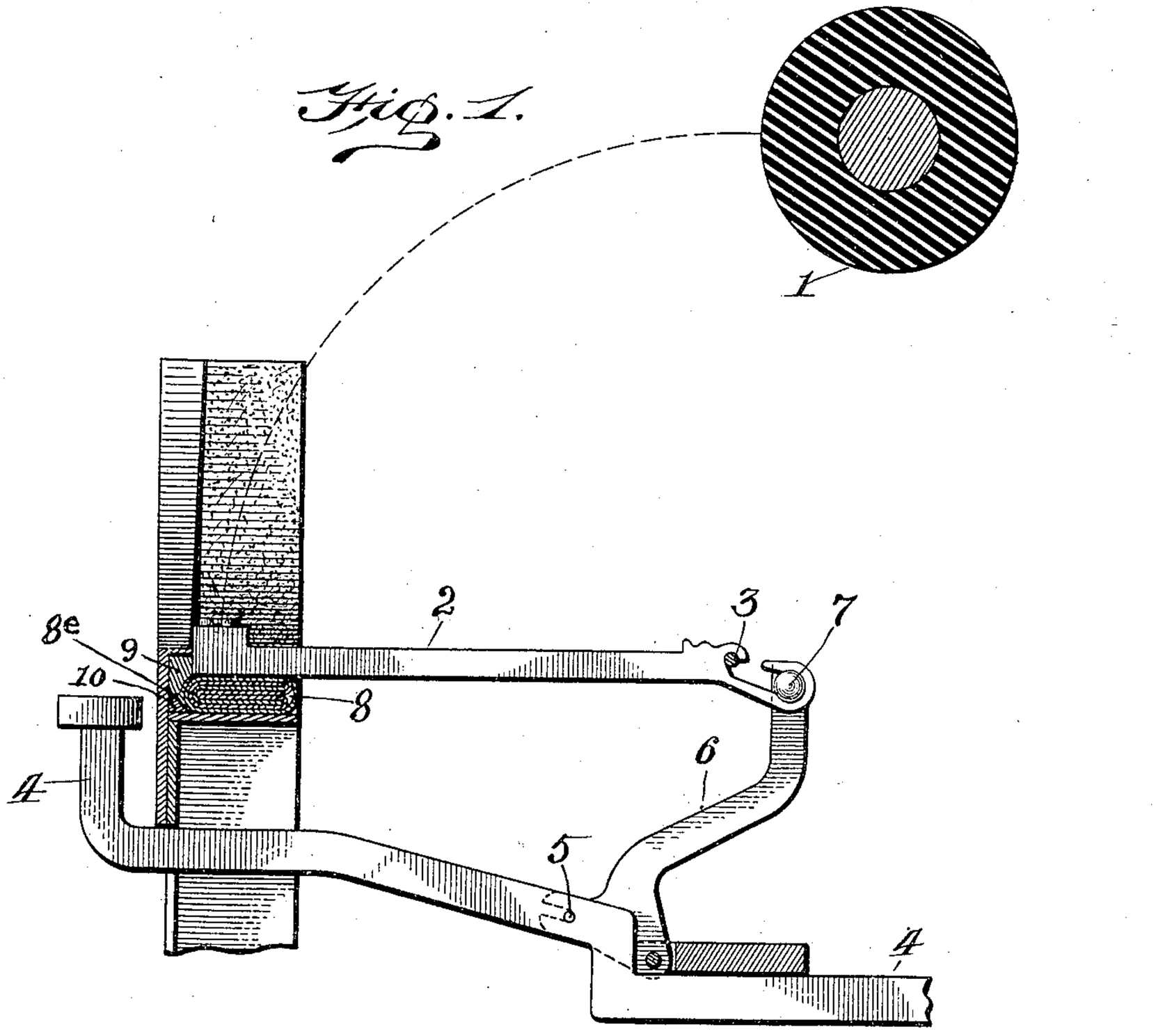


Fig. 2.

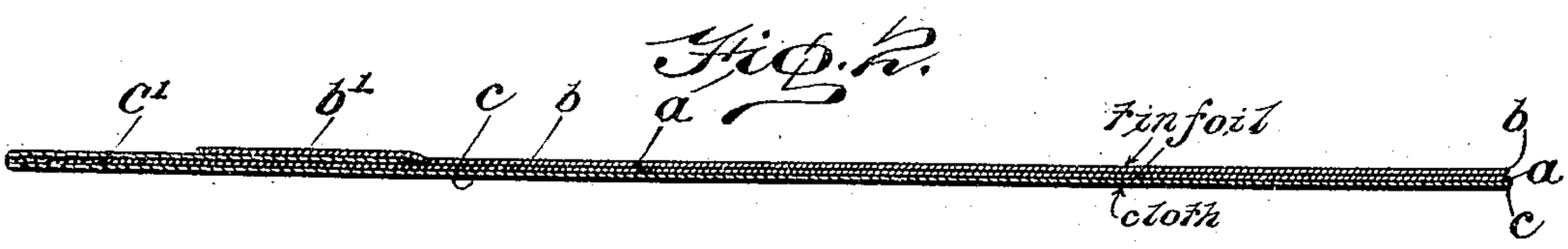
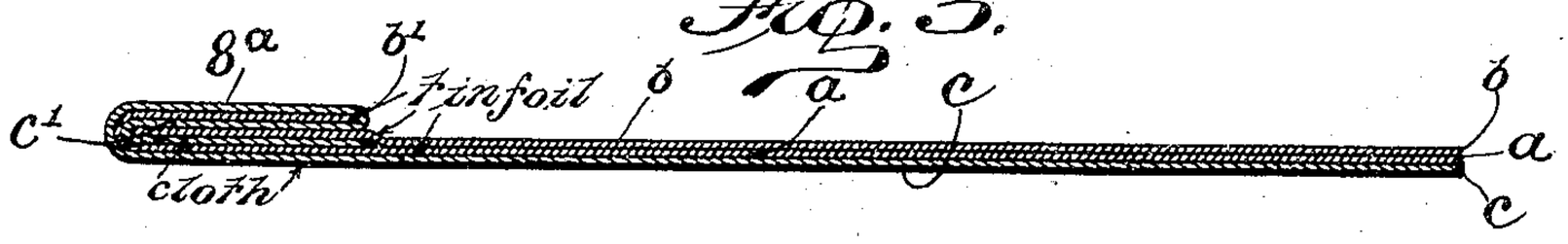


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

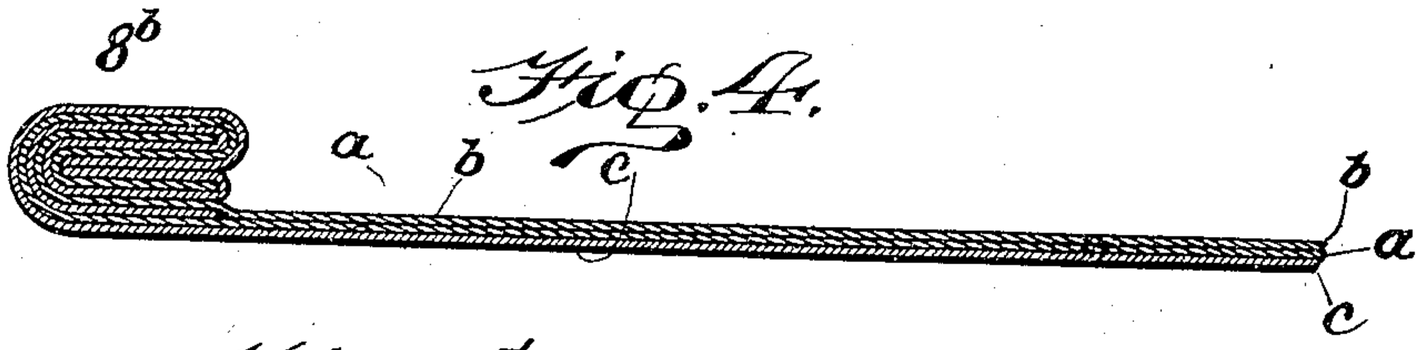


Fig. 5.

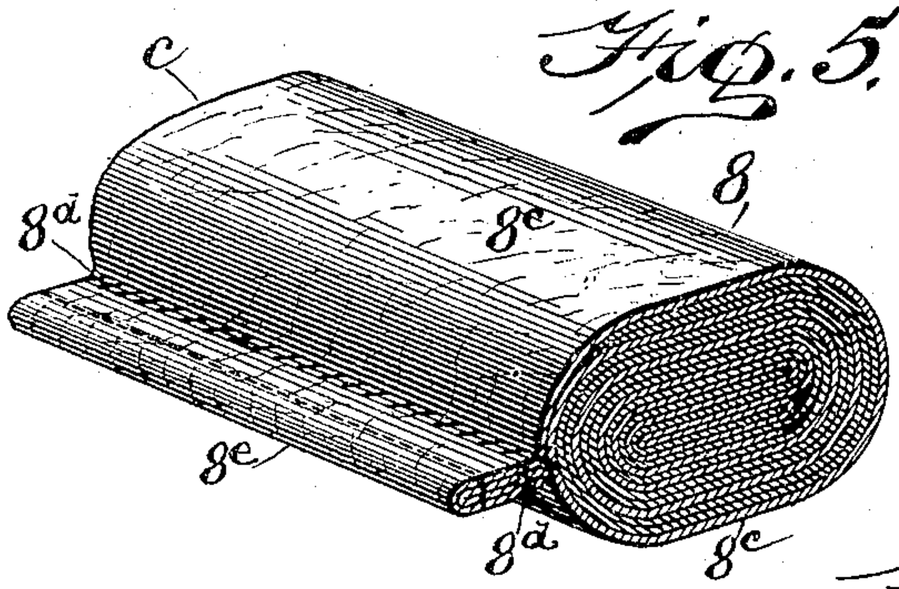


Fig. 6.

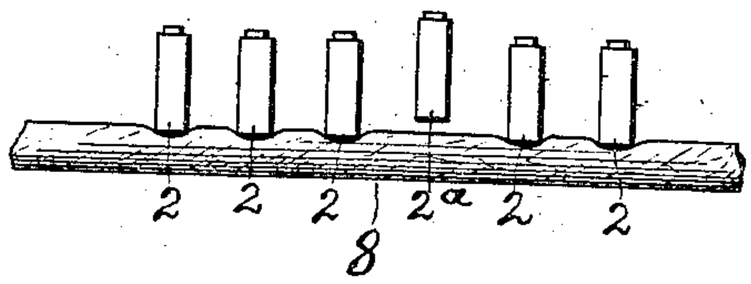


Fig. 7.

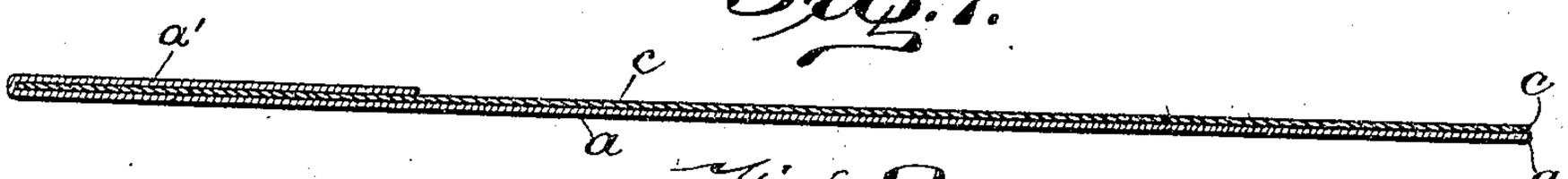


Fig. 8.

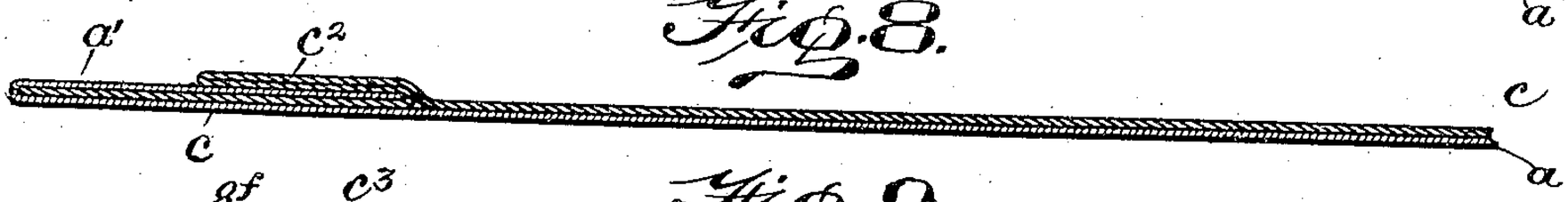


Fig. 9.

Fig. 10.

Fig. 11.

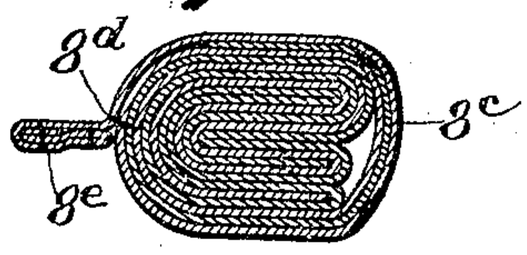


Fig. 12.

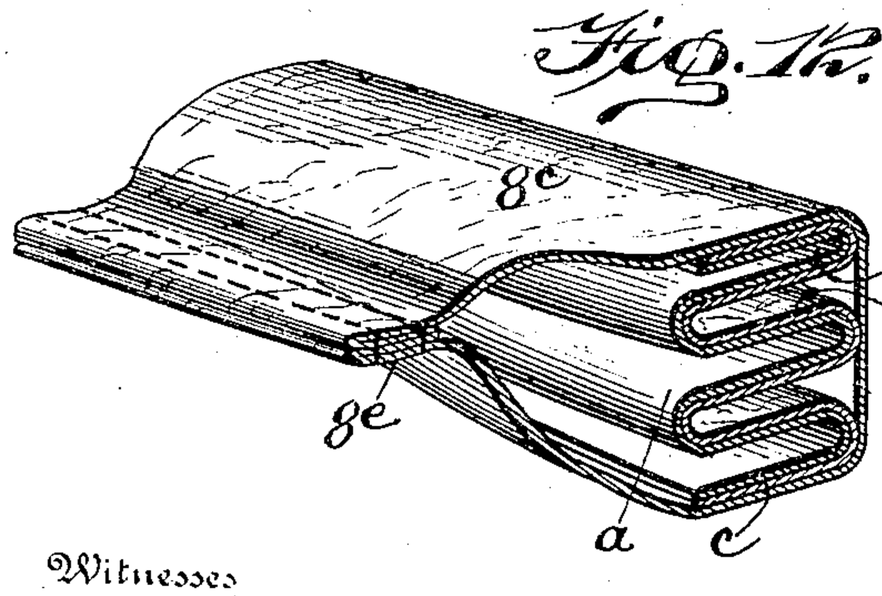
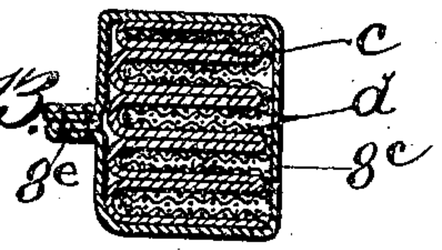


Fig. 13.



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UNITED STATES PATENT OFFICE.

WILLIAM BAXTER, JR., OF JERSEY CITY, NEW JERSEY.

TYPE-WRITER.

No. 816,637. Specification of Letters Patent. Patented April 3, 1906.

Application filed February 6, 1903. Serial No. 142,223.

To all whom it may concern:

Be it known that I, WILLIAM BAXTER, JR., a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

My invention relates to arresting-pads for type-writers—that is to say, to the pads upon which the type-bars strike as they return to position of rest after executing the printing stroke.

In my application filed May 22, 1902, Serial No. 108,245, I have described and broadly claimed a type-writer pad having the inherent qualities of yielding under the impact of the return stroke of the type-bar sufficiently to absorb the energy of the stroke, together with non-resiliency, which causes such energy to be dissipated, whereby I am enabled to prevent the objectionable rebounding of the bars, which I have pointed out to be a most frequent cause of the interference between adjoining bars when successively actuated, that seriously impairs the speed of successful operation.

According to my present invention I produce a pad having the inherent qualities stated by building it up of some highly ductile, inert, or inelastic metal having extreme flexibility, with substantially no resiliency, in very thin forms—such, for instance, as tin in the shape of tin-foil, or lead or copper in very thin sheets, or thin wire-gauze, or other fabric woven of such metals—the pad being built up of folds, layers, convolutions, or rolls of such material, preferably alternated or otherwise suitably associated with a filling or separating body of very thin fabric, which will facilitate the bending, indentation, or yielding of the layers or folds of the inert metal and prevent their adhesion under impact of the type-bars.

My present invention will be fully understood upon reference to the accompanying drawings, in which—

Figure 1 is a sectional detail view of my improved pad, together with parts of a type-writer of known construction, with which it is associated for purposes of illustration. Figs. 2, 3, and 4 are views illustrating progressive stages in one method of forming the pad. Fig. 5 is a perspective view of a portion of a pad developed by the method of folding illustrated in Figs. 2, 3, and 4. Fig. 6 is a view illustrating the effect of impact of the keys on the surface of the pad. Figs. 7, 8, 9, and 10 illustrate progressive stages in the formation of a pad by a slightly-different method of folding to that shown in Figs. 2 to 5. Fig. 11 is an end view of a pad developed by the method of feeding illustrated in Figs. 7 to 10. Fig. 12 is a perspective view of still another method of folding, a portion of the outer sheath being cut away and the folds being spread at the exposed end to disclose the separate folds more clearly; and Fig. 13 is an end view of a pad built up by folding a soft-metal woven fabric with an intervening cloth fabric or the like.

Referring to Fig. 1, 1 represents the paper-roll, 2 the type-bar, which is fulcrumed at 3, and 4 a key-lever, which actuates the type-bar through its connection at 5 with an intermediate lever 6, that connects with the type-bar at 7.

8 represents the type-bar-arresting pad, the construction of which forms the subject-matter of my present invention. According to the form shown in Figs. 2 to 5, inclusive, this pad is made up of thin sheets of tin-foil and cloth. Two sheets *a* and *b* of tin-foil are preferably used to give sufficient body to the inert metallic element of the pad without detracting from its flexibility or yielding character or giving it resiliency, though one thicker sheet might be employed with fairly good results, and one sheet of cloth *c* is used, which is thin enough to avoid detracting from the necessary inherent qualities of the pad when completed. The dimension of these sheets, (their width,) which is not shown, is assumed to be approximately equal to the length of the pad to be formed. Good results in building up the pad may be attained by proceeding as shown in Figs. 3 to 5—to wit, by folding the end of the cloth *c* over the under foil *a*, as shown at *c'*, then laying the upper foil *b* about half over the fold *c'*, as shown at *b'*, then doubling the fold *c' b'*, as shown at 8^a, Fig. 3, and again as shown at 8^b, Fig. 4, if desired, to form a nucleus for the pad and to prevent the sheets of metal and cloth from slipping over one another during their further manipulation, then by continuous rolling, folding, or wrapping the compound sheet of material around the nucleus until the desired thickness of pad is built

up—such, for instance, as shown in Fig. 5. The cloth sheet *c* is cut sufficiently in excess of the length of the metal foil or foils to form a complete outer sheath 8^c in the finished pad, for which purpose the free end may be stitched or otherwise attached, as shown at 8^d, to the sheath-forming portion and then folded upon itself to form and give body to an attaching-seam 8^e, which will serve for securing the pad in place by gripping it between two segmental bars 9 10 in the frame 11.

As shown in Figs. 7 to 11, the pad may be made of a single metallic under foil *a* and a cloth oversheet *c*, the under metallic foil being folded over the cloth, as shown at *a'*, Fig. 7, a folded lap *c'* of cloth then being laid half over fold *a'*, Fig. 8, the fold then being doubled, as shown at 8^f, Fig. 9, with the cloth fold *c'* between adjacent metallic parts, and another double-cloth fold c^3 being laid half on the metal and the fold being then doubled a second time, as shown at 8^g, Fig. 10, to complete the nucleus, after which the pad is completed by rolling, folding, or wrapping the composite material around the nucleus until the desired thickness of pad is built up in the form of the flattened roll shown in Fig. 11. In this method the cloth is always adjacent to the metal, and it is left sufficiently in excess of the length of the latter to permit of wrapping it entirely around the roll to form a sheath 8^c, stitching it at 8^d, and forming from it the attaching-seam 8^e, as described with reference to Fig. 5.

The precise method of building up these pads and the specific material employed are not limited to the methods and material above described; but many changes may be introduced without departing from the spirit of my invention.

As shown in Fig. 12, the composite material *a c* may be folded back and forth upon itself and a separate sheath 8^c 8^e employed, while in Fig. 13 is shown a pad made up of a sheet of cloth *c* and a metallic element *d* of soft-wire fabric, this wire being understood to be lead, highly-annealed copper, or other metal of like physical character, the whole being inclosed in a sheath 8^c 8^e of cloth, leather, or the like.

When the type-bars strike down upon a pad constructed as herein described, the pad yields with a sluggish or inert action under the impact of the type-bar, so as to prevent springing of the bar or its operating connections, which would cause rebounding and also in a manner to completely absorb the energy of the stroke, and the character of the pad is such that the work thus absorbed will not be stored up and given out again, because the pad is thoroughly inelastic or non-resilient. The folds or layers of the metal or some or all of them are affected by the stroke so as to be depressed, as shown in Fig. 6, beneath the several type-bars represented at 2. The work is further taken up by the fact that indenting the pad at one point seeks to stretch the sluggish or inert metal at other points—such, for instance, as shown beneath the key 2^a, Fig. 6. The intervening folds of spacing material or cloth maintain the separation and freedom for individual action on the part of the several folds of metal, yet the operation of the cloth on the metal is not such as will detract from the non-resilient character given by the latter.

Having thus described my invention, the following is what I claim as new therein:

1. In a type-writer, a type-bar pad absorbent of the work of the returning type-bars, embodying in its structure thin, flexible, and non-resilient metal, yieldingly supported in the body of the pad.

2. A type-writer pad constructed of thin layers of non-resilient metal in thin flexible form.

3. A type-writer pad constructed of non-resilient metal in thin form, arranged in layers with intervening material separating the folds or layers.

4. A yielding non-resilient type-writer pad constructed of thin flexible but non-resilient sheet metal together with a suitable spacing material, the composite material thus formed being arranged in layers.

5. A yielding non-resilient type-writer pad constructed of a composite material made up of metal foil and cloth, such composite material being formed into layers to form a pad of the desired thickness.

6. A yielding non-resilient type-writer pad constructed of a composite material made up of metal foil and cloth, such composite material being formed into layers to form a pad of the desired thickness, and the cloth being continued in the fold or roll beyond the metal and suitably secured to form a sheath for the pad.

7. A yielding non-resilient pad constructed of folds of flexible non-resilient metal, and a suitable sheath surrounding the pad so formed.

8. A yielding non-resilient pad constructed of flexible non-resilient metal in thin form, formed into layers with intervening separating material, and having a sheath surrounding the pad thus formed.

9. A yielding non-resilient type-writer pad formed of folds of a composite material consisting of thin non-resilient sheet metal with a suitable fabric folded to develop the pad of sufficient dimensions, the fabric being continued in the fold beyond the metal, so as to completely surround the pad, and having its end stitched or suitably secured to the sheath-forming portion of the fabric to complete the closure.

10. A yielding non-resilient type-writer

pad formed of a composite material consisting of thin non-resilient sheet metal with a suitable fabric folded to develop the pad of sufficient dimensions, the fabric being extended beyond the metal, so as to completely surround the pad, and having the extension stitched or suitably secured to the sheath-forming portion of the fabric to complete the closure, and formed into a projecting attaching seam.

The foregoing specification signed this 31st day of January, 1903.

WILLIAM BAXTER, Jr.

In presence of—

STEPHEN H. OLIN,
THOMAS W. PHAIR.