

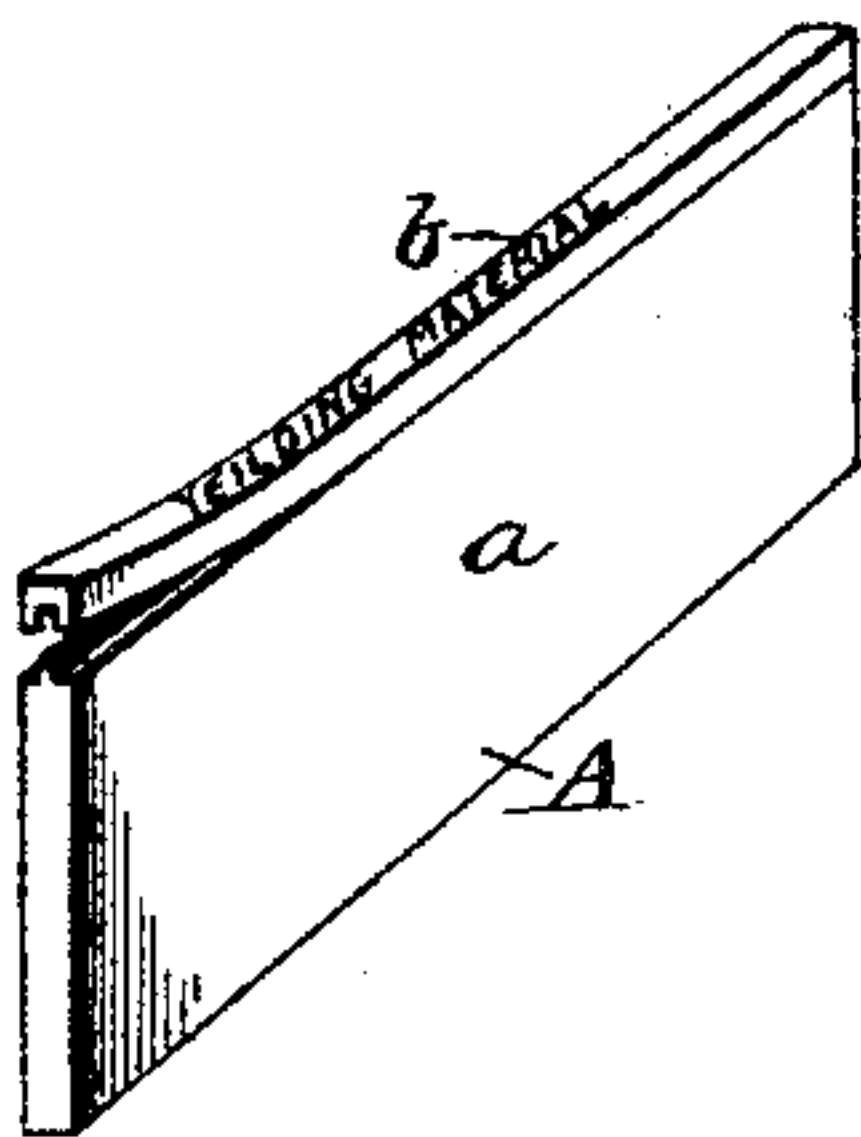
(No Model.)

R. H. ST. JOHN.  
TYPE BAR.

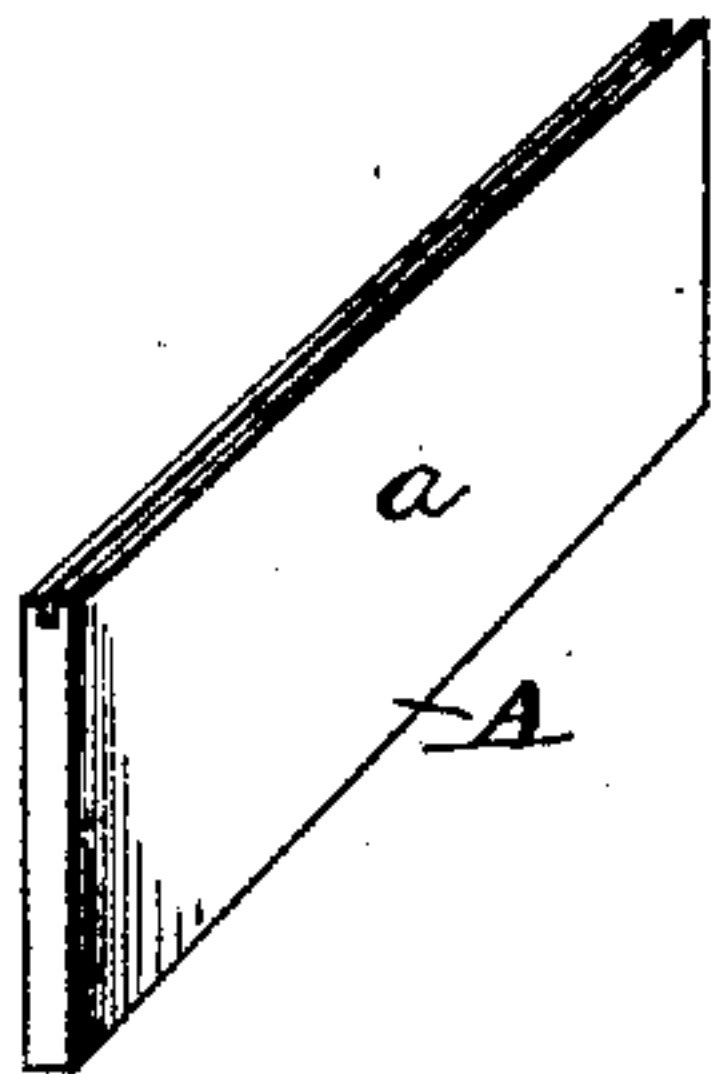
No. 435,777.

Patented Sept. 2, 1890.

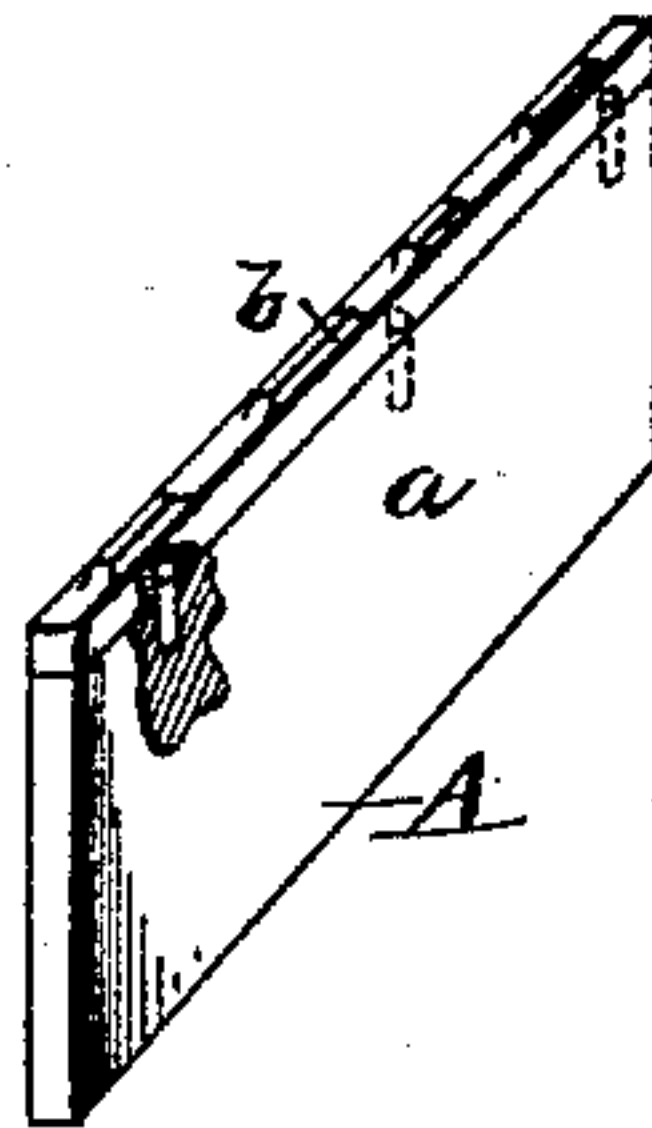
*Fig. 1.*



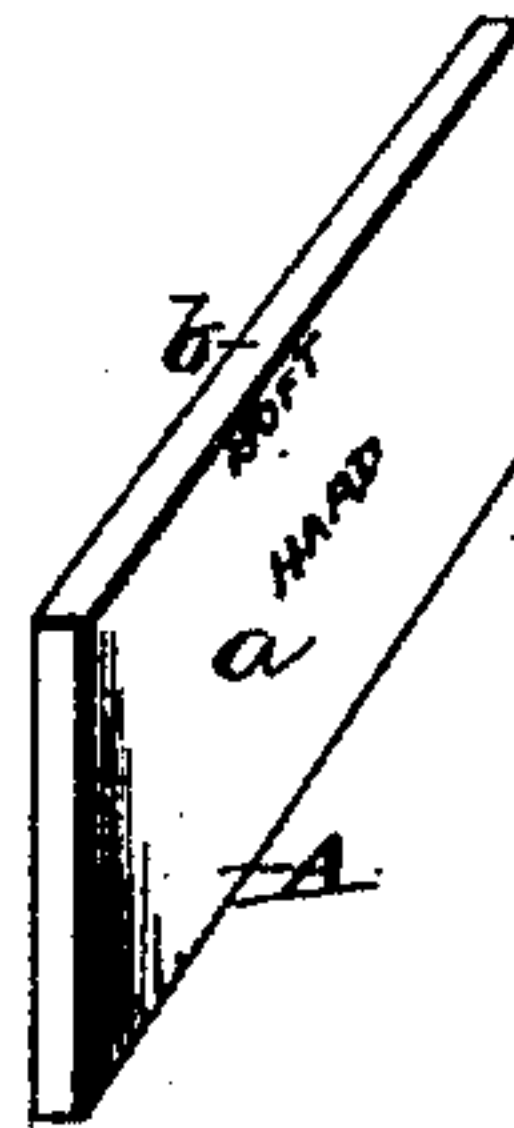
*Fig. 2.*



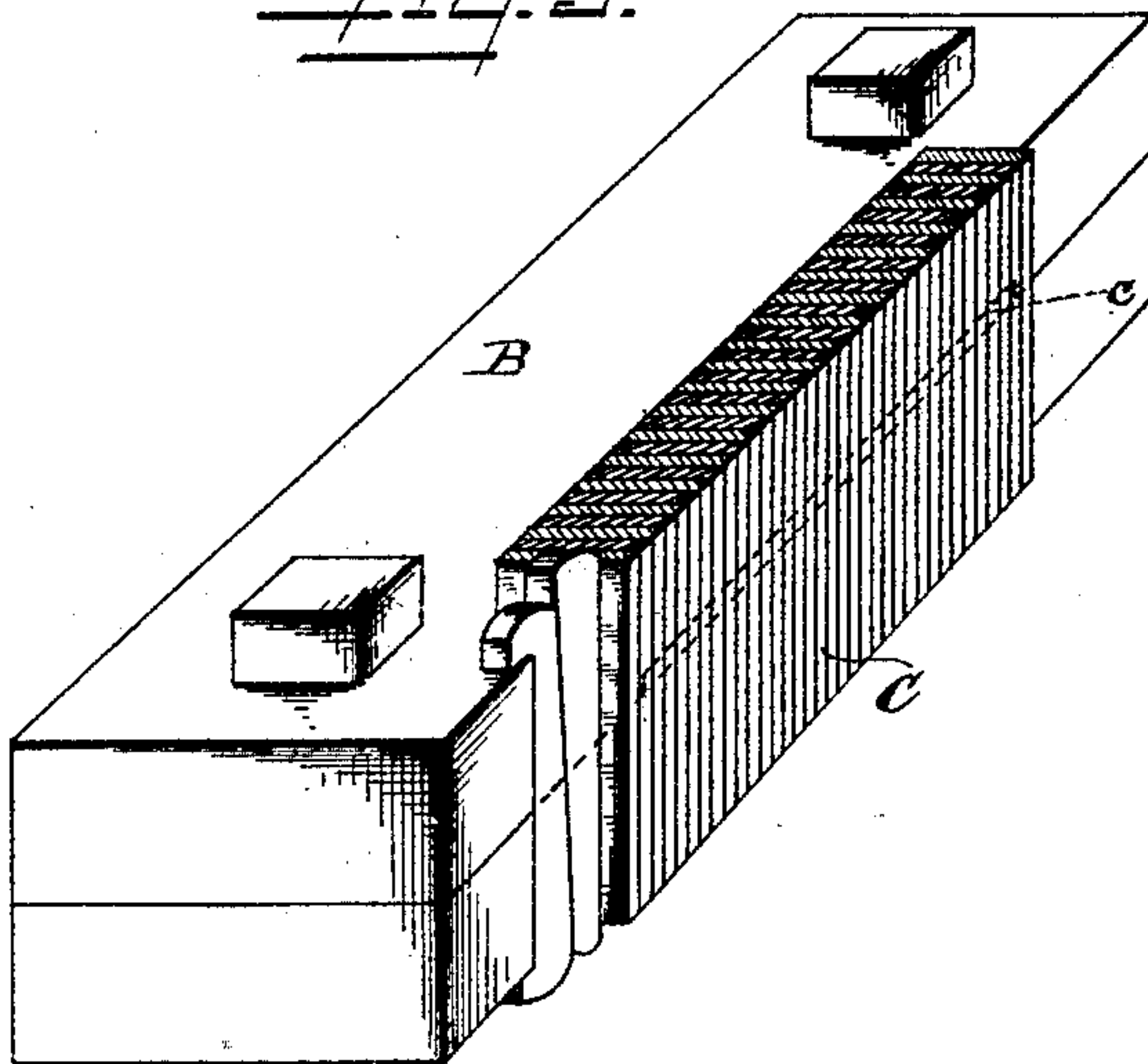
*Fig. 3.*



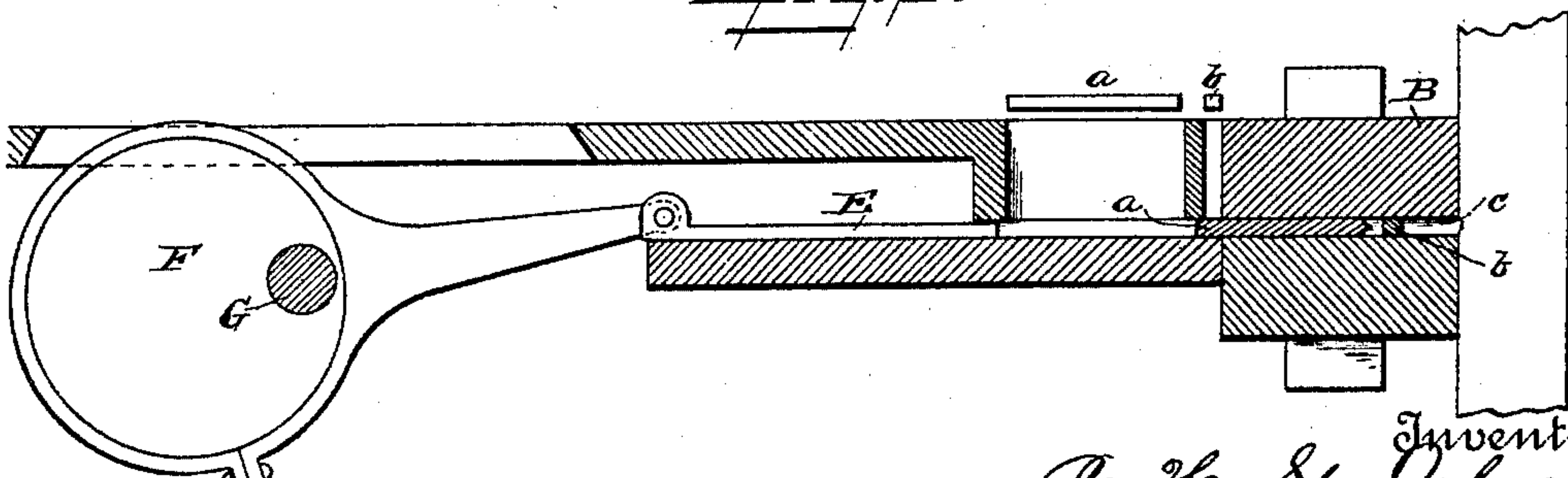
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



Witnesses

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# UNITED STATES PATENT OFFICE.

ROSWELL H. ST. JOHN, OF CLEVELAND, OHIO.

## TYPE-BAR.

SPECIFICATION forming part of Letters Patent No. 435,777, dated September 2, 1890.

Application filed August 5, 1890. Serial No. 361,076. (No model.)

*To all whom it may concern:*

Be it known that I, ROSWELL H. ST. JOHN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Type-Bars; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to

which it appertains to make and use the same.

In the accompanying drawings, Figure 1 is a perspective view of a type-bar made according to my invention and showing a strip of soft material, preferably of metal, laid upon the edge of the bar and partly detached, the body of the bar having a tongue along its edge, upon which the soft strip is supported. Fig. 2 represents a modification of the way of supporting the soft strip, the body of the bar having a groove instead of a tongue, and in Fig. 3 I show another way of fastening the soft strip, in which dowel-pins are employed for this purpose. Any practicable way of securing the parts of the bar together may be adopted. In Fig. 4 I show a type-bar formed with a hard body and a soft or yielding edge and made of a single piece. Fig. 5 is a perspective view of a type-bar holder and a series of matrices locked in position thereon. Fig. 6 is a cross-section of the bar-holder and matrices shown in Fig. 5, and shows in addition a soft-metal strip and a type-bar body in position to be forced together by pressure in the bar-holder simultaneously with taking an imprint from the matrices upon the bar, the soft-metal strip in this case embedding itself upon the bar before imprinting occurs, and means for producing the necessary pressure.

A represents the type-bar. This bar may be formed in one of several ways; but by whatever way or process it is produced it is designed to be so made that in forming the characters upon the edge of the bar by pressure the body of the bar will be firm enough to resist the pressure, and thus the thrust or pressure be expended on the yielding edge of the bar. In the manufacture of a bar of this character I preferably take a bar or strip *a* of a hard metal—say of steel, hardened brass, or other suitable material—and fix upon the edge thereof, by any suitable means or process, a

strip of softer and impressible material *b*. This material may be any metal or a composition of metals or other materials that will take and hold a clear and well-defined imprint from the matrices, and which is hard enough at the time the imprint is made to be immediately used, or is capable of hardening or of being hardened by exposure or treatment for use.

I have shown in Figs. 1, 2, and 3 several ways of uniting these parts, which may, however, be largely varied and yet be within the scope of the invention. When a soft or yielding strip is employed, it is designed to be attached to the hard portion of the bar, that it may be used therewith the same as if it formed an integral part of the bar, and yet be so fastened that it can be pulled off after use and be melted over for further use; but the entire bar may be made in a single piece by providing it with a hard body and a yielding and compressible edge. One means of accomplishing this is by first casting a piece or body of hard material and then pouring onto the edge of this blank, as it is set edgewise in a mold or box in a molten state, molten metal of a softer material to form the edge. Then when the characters are formed thereon by pressure the same result is obtained as by laying a separate strip upon the edge of the bar. In these several examples of the construction of a composite bar it will be observed that a complete type-bar blank is formed which is in condition to have the characters impressed thereon before such impression or imprinting occurs. Hence the blank is a separate and distinct article, which may be made on a separate machine or machines, or partly or wholly in the machine which makes the imprint. In the process by which these steps in the production of a type-bar are worked out and in which the bar herein described and claimed is employed in one of the forms of my process it will be observed that a type-bar blank of a suitable construction is made, to begin with, and then after assembling the matrices to form a line of printed matter, all duly spaced and justified, an imprint from said matrices is produced upon the type-bar blank by pressure, thus forming a type-bar in a single piece, having the length, usually, of the width of a column



of printed matter, and adapted to be used with ordinary type as such type are ordinarily used for printing or other purposes.

In carrying out this process of producing a type-bar blank and of impressing upon the edge of it the characters, forms, or designs represented in the matrices, machines differing considerably in construction may be adopted; and I do not, therefore, in this case express a preference for any particular form or style of machine. However, I show one way which will serve to illustrate the idea. Thus the drawings illustrate a sectional holder B, having a transverse slot *c* of the length and depth of the type-bar blank, which is adapted to be slid through the slot under pressure, and at the rear of the holder I show locked together a series of matrices C, sufficient in number, say, to form a complete line of printed matter and brought snugly up against the rear edge of the holder. Then when a blank bar is pressed through said slot against the matrices by the presser or follower E, operated by the eccentric F on the shaft G, the strip *b* is forced on the bar *a* and the impression thereon made simultaneously. These impressions may be in cameo or in intaglio, but usually will be in cameo or relief, so as to be used with ordinary printing-type; but, as before stated, this is only one of several ways that may be adopted for uniting the parts of the bar, and ordinarily they are made complete before entering slot *c*. One reason why it is preferable to use a hard body and a yielding edge, instead of a bar of the same density, consistency, or firmness throughout, is the fact that a bar having the right consistency to take a clear and sharply-defined impression from the matrices, and which, by reason of its quality, will not dull or otherwise impair the matrices, should be so yielding that a full-sized bar of soft material would require much compression before the imprinting of the characters would occur. This would necessitate a bar of considerably greater width to begin with than it would be when finished, and the imprinting of the characters on such a bar would occur by gradually squeezing the soft material into the matrices, instead of being cleanly and sharply cut by the matrices, as occurs when the imprint is made instantly, as when a narrow yielding edge and a hard background are used. Then, again, it requires much less convertible material. The body of the blank is permanent, and only the soft-metal strip need be melted over and re-formed for use. This works a large saving of destructible material and is cheaper and better every way than a bar of like material and density throughout. The bar itself may be passed through the slot *c*, as shown, or it may be held in the slot with its edge exposed and the matrices forced against it. The better way, however, is to lock the matrices and the holder closely and firmly side by side in close contact and then force the type-bar forward in the slot. This

avoids possible forming of burrs or ragged edges about the faces of the characters, which will occur if the sides of the bar are not protected and inclosed where it comes in contact with the matrices.

The subject-matter of a composite type-bar, shown and described in my application, Serial No. 345,466, is withdrawn from said application and constitutes the subject of this application.

What I claim, and desire to secure by Letters Patent, is—

1. A type-bar blank composed of a hard body and a yielding edge, substantially as described.

2. A type-bar blank consisting of separate pieces fastened together along their edges, one of said pieces constructed to have characters impressed thereon, substantially as described.

3. A type-bar having a body of hard material and a strip of soft material upon the edge thereof, substantially as described.

4. A type-bar formed of different pieces of metal detachably fastened together, and characters on one edge of said bar, substantially as described.

5. A type-bar consisting of a body having a projection at its edge, and a strip of compressible material engaged and held by said projection, substantially as described.

6. In a machine for imprinting characters on a type-bar by pressure, the combination, with a bar having a hard body and a yielding edge, of a holder for said bar constructed to fit snugly upon the sides and ends of the same, a series of matrices opposite the exposed edge of said bar, and means to force the said bar and matrices together, substantially as described.

7. A holder for the type-bar open along one side to expose the edge of the said bar to the matrices, a series of matrices locked together preparatory to taking an impression, pressure mechanism to force the type-bar and matrices one toward the other, and a type-bar having a hard body and a yielding edge, substantially as described.

8. A type-bar provided with a hard body and a yielding edge and a holder therefor with a transverse slot or opening in which the bar fits closely at its sides, a series of matrices opposite the said slot, and a follower to force the bar in said slot against the said matrices, substantially as described.

9. A type-bar corresponding in size to a line of type and having a hard body and a yielding edge, and a holder for said bar fitting closely upon the sides and ends thereof, in combination with a series of matrices supported in line against said holder, and pressure mechanism to imprint the characters of the matrices in relief upon the plain edge of the type-bar, substantially as described.

10. The method of forming type-bars, which consists in securing a strip of soft or yielding material capable of taking an impression from



a matrix upon the edge of a suitable bar and then making an imprint from the matrix upon the yielding material by pressure, substantially as described.

consisting of an assembled series of characters, substantially as described. 10

Witness my hand to the foregoing specification this 1st day of August, 1890.

ROSWELL H. ST. JOHN.

Witnesses:

H. H. HOSFORD,

NELLIE L. McLANE.

5 11. The method of forming type-bars, which consists in forming a bar with a hard body and a yielding edge and then making an imprint upon said yielding edge by a matrix