

E. Maher,

Harness Trace,

Nº 30,855.

Patented Dec. 4, 1860.

Fig. 1.

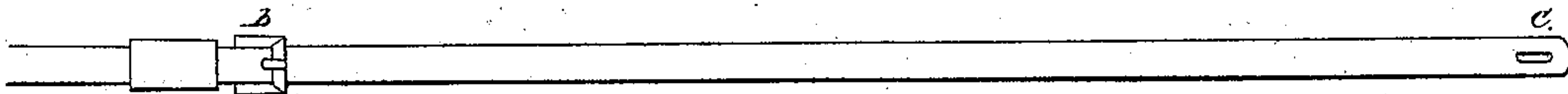


Fig. 2.

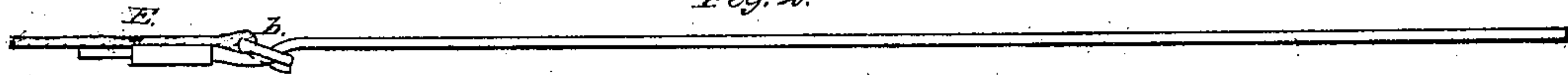


Fig. 3.

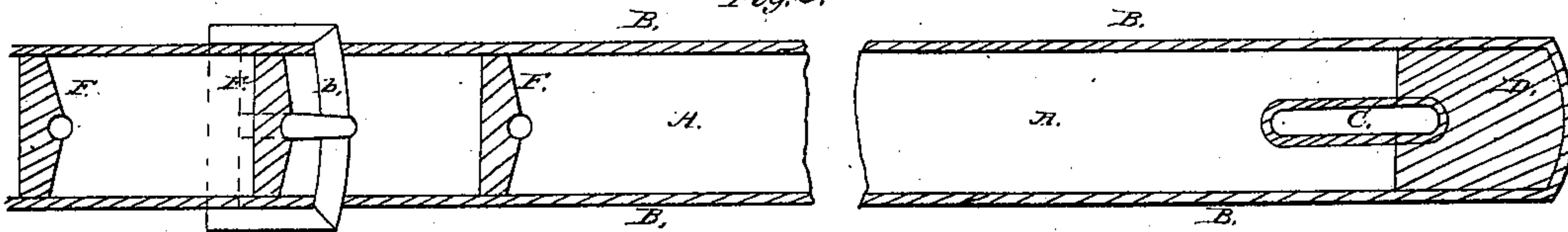


Fig. 4.

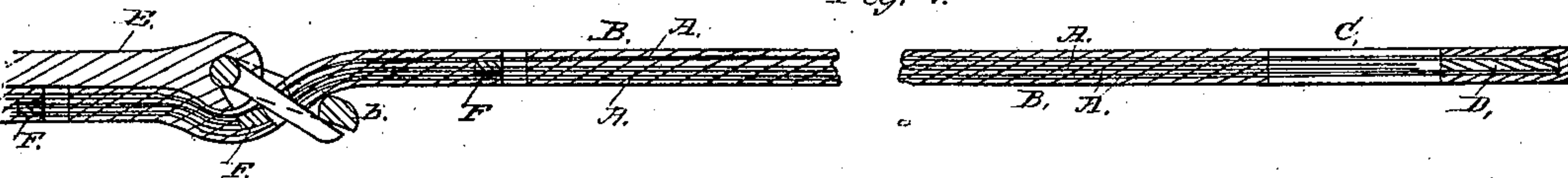


Fig. 6.

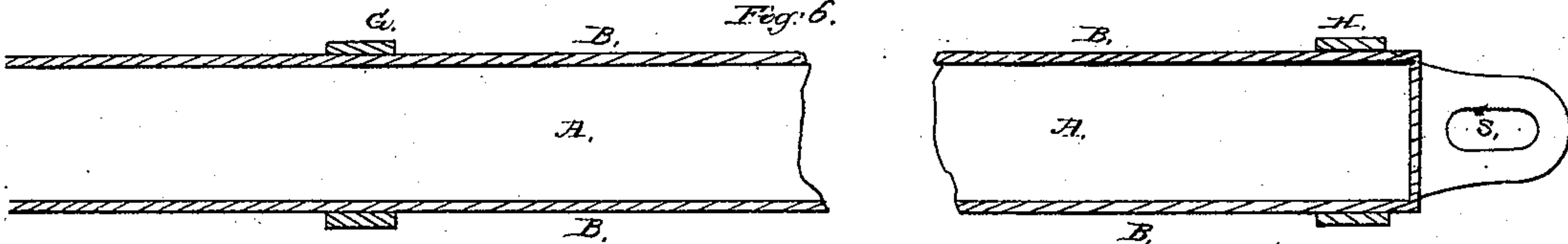


Fig. 7.

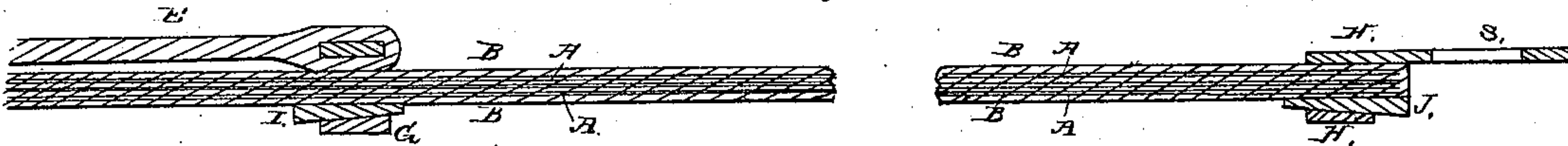
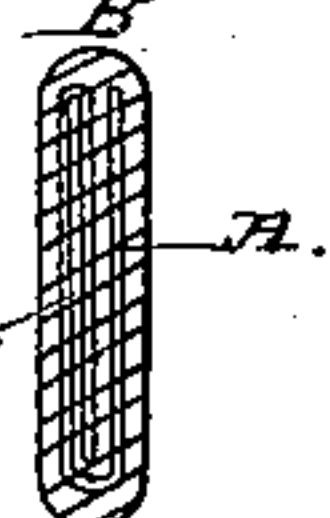


Fig. 5.



Witnesses:

J. J. Greenway
Edmund Kenins

Inventor:

E. Maher

UNITED STATES PATENT OFFICE.

EDMUND MAHER, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND MARCUS M. WILCOX,
OF SAME PLACE.

HARNESS-TRACE.

Specification of Letters Patent No. 30,855, dated December 4, 1860.

To all whom it may concern:

Be it known that I, EDMUND MAHER, of the city, county, and State of New York, have invented a new and Improved Elastic Harness-Trace; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

Figure 1, is a side view of the improved trace attached to the hame tug. Fig. 2, is a top view of the same. Fig. 3, represents a vertical section of the forward and rear ends of the same, on an enlarged scale. Fig. 4, is a horizontal section of the same. Fig. 5, is a cross section of the same. Fig. 6, is a vertical section of the forward and rear ends of a trace without perforations, and wedged box castings for securing its ends. Fig. 7, is a horizontal section of the same.

Similar letters in the several figures refer to corresponding parts.

This invention consists in forming a harness trace or tug of vulcanized gutta-percha, india rubber, or other vulcanizable gum, having a slightly yielding woven or other fibrous fabric within it, in such a manner as to enable it to have a slightly elastic elongation and contraction, corresponding with the inequality of draft of the horse, and thereby give a corresponding relief to his shoulders.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

The trace represented in the drawings contains three-ply of cotton duck A, which is cut at such an oblique angle or bias in relation to the warp, as to enable it to have the required extent of elongation when subjected to the fullest force of draft. It is inclosed in vulcanized gutta-percha, india-rubber or other elastic gum B, by the same process that the cotton duck of ordinary gutta-percha and rubber belting is covered and secured in its place, its length being determined by the character of trace desired. The inclosed fabric may however be formed of hemp, flax, or other material, either woven, braided or twisted together, and covered by the gum, in such a manner as to enable it to have the slight yield mentioned.

If the trace is designed to be attached directly to the whiffle-tree, its rear end will be perforated with the usual slot C, and

strengthened at this part by the insertion of a plate D, of metal or other suitable material, between or next the cotton duck. And in all cases where it is of the form to be attached to the hame tug E, by a buckle L, as represented in Figs. 1, 2, 3 and 4. Small bars or plates of metal F, or other hard material, are placed between or next the said cotton duck, immediately in advance of the buckle-tongue holes, in order to give increased resisting power, and prevent wear at these points. These results may be accomplished without the attachment of these bars or plates F, and plate D, by making the weft or filling of the inclosed fibrous fabric of such character of material, and body, as to insure the same desired strength and durability.

After the traces are brought to the required size and form, they are placed in corresponding metallic molds having any desired ornamentation on their surfaces, in which, during the process of vulcanization, their rounded edges and entire surfaces are smoothed and glazed by long contact with the corresponding smooth surfaces of the molds, under the high degree of heat necessary to vulcanize them.

Where the "take-up" of the traces is effected by chains at the rear ends, the eyes, hooks, or rings at either end will be secured by rivets in the usual manner.

By forming traces in the manner before described, a constant elongation and contraction will be given the same, proportionate with the draft exerted thereon, whenever the wheels of the vehicle to which they are attached meet any inequality in the road, or an additional force is required on the horse's shoulders, which elongation will be immediately taken up again upon the horse's shoulders being relieved of their pressure, thus relieving them of the sudden shocks and jars they are constantly subjected to from the causes mentioned, and preventing other injurious effects experienced in the use of the ordinary leather trace.

This character of trace receives the highest degree of durable polish during the process of vulcanization in the molds, similar to that given to many vulcanized gum surfaces; and any desired alto-relievo ornamentation may be readily formed on its outer surface during the process of fabrication.

In case it is desired, the two ends of the trace may be fastened respectively to the hame tug and whiffle-tree pin, by metallic boxes G, H, in which event the forward
5 box G, is fastened to the hame tug in lieu of the ordinary buckle, and in a somewhat similar manner, the strap being turned within it as represented in Fig. 6, so as to inclose its straight side. The opposite side
10 is made tapering, and when the forward end of the trace is passed through the box G, a wedge I, whose surfaces are made to respectively fit against the flat surface of the trace and inner tapering surface of the box,
15 is driven into the said box, and in this manner the forward end is firmly clamped.

The box H, in which the rear end of the trace is clamped by a wedge J, in a similar manner, is made in every respect like the
20 forward one G except that it is made more shallow, and its straight side is extended sufficiently far beyond the box

proper, to admit of a suitable slot s, or other formed opening to be made in it for the attachment of the whiffle-tree pin, or a
25 hook or other device to attach it thereto. It is obvious that by this method of attachment, with the smaller ends of the wedges situated next each other, the more strain exerted on the trace the more tightly will
30 its ends be held; and that by thus securing the said ends the entire warp at these parts will be embraced.

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

The before described new and improved article of manufacture, the same being an elastic harness trace formed of a textile fabric composed of the materials and substantially in the manner herein set forth.

E. MAHER.

Witnesses:

J. J. GREENOUGH,
JULIUS HENNIS.