(No Model.) 2 Sheets—Sheet 1.

H. H. UNZ.

TYPE WRITING MACHINE.

No. 490,235. Patented Jan. 17, 1893.

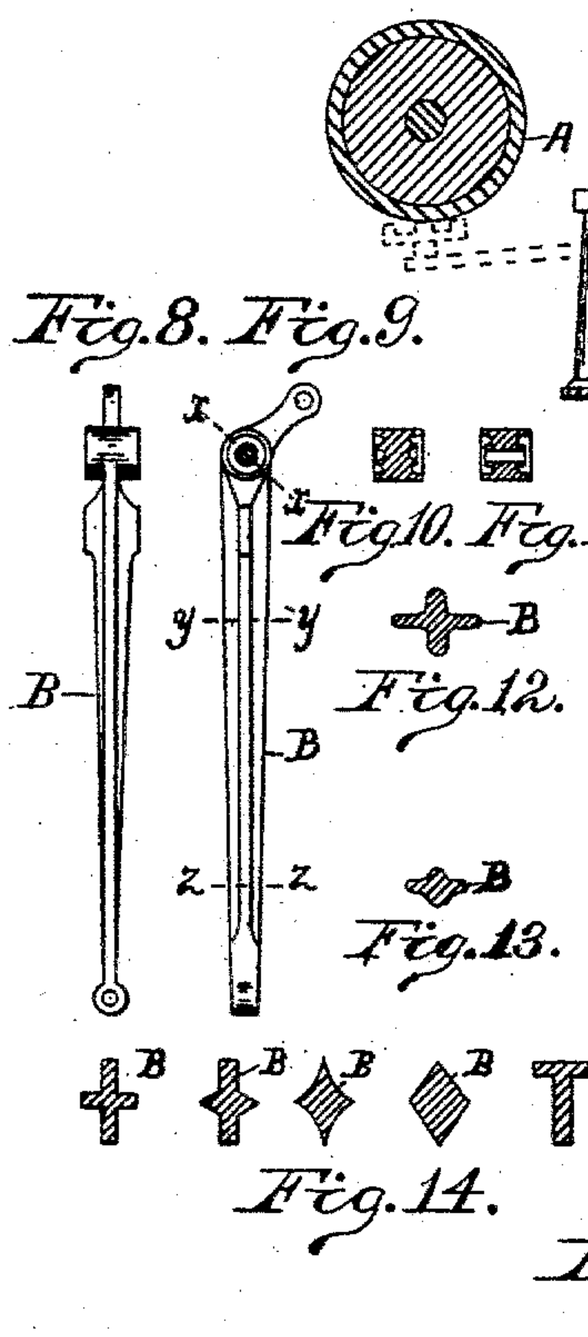

Fig. 8. Fig. 9.

Fig. 10. Fig. 11.

Fig. 12.

Fig. 13.

Fig. 14.

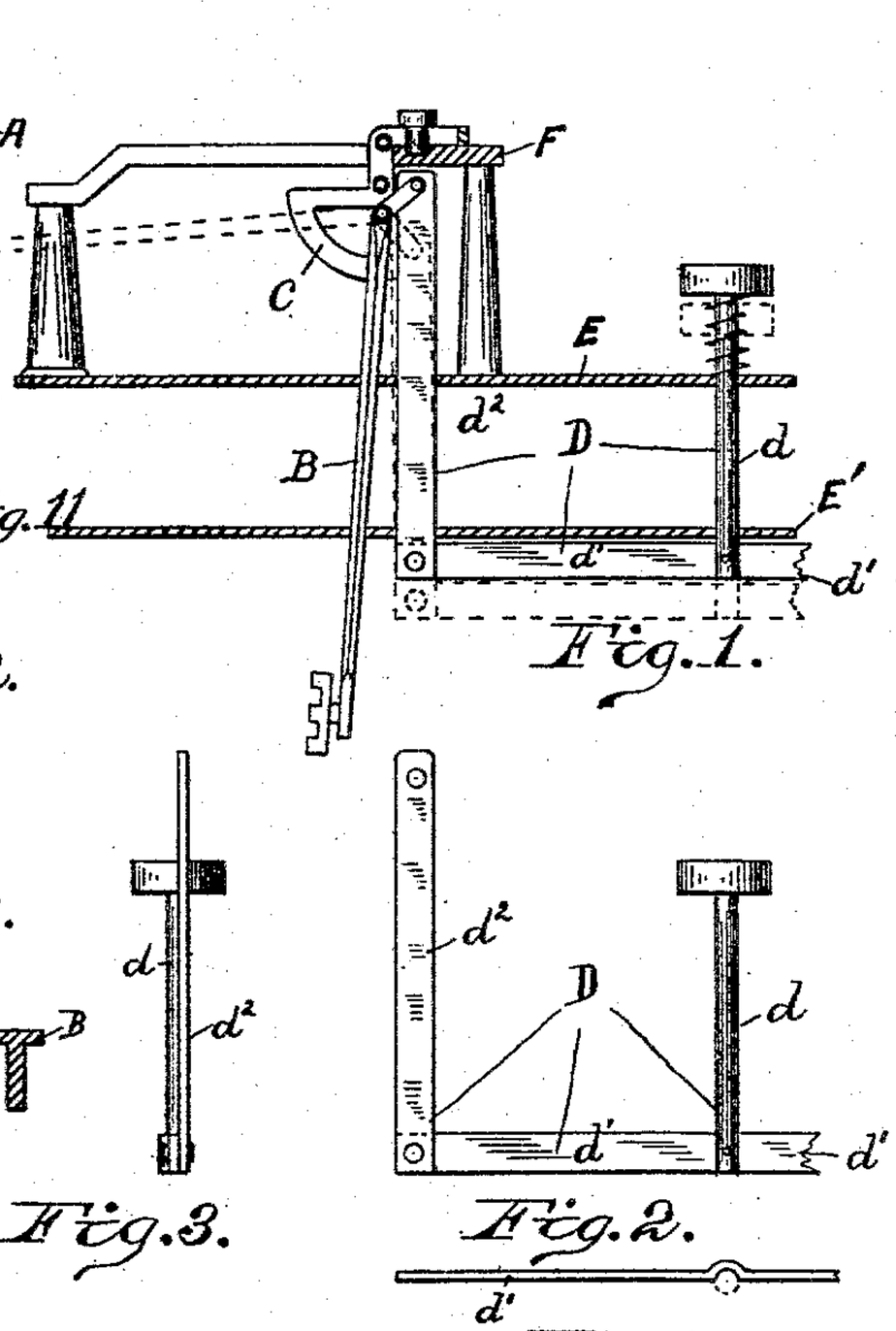

Fig. 1.

Fig. 3.

Fig. 2.

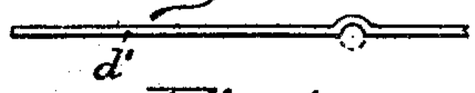

Fig. 4.

Fig. 7.

Fig. 6.

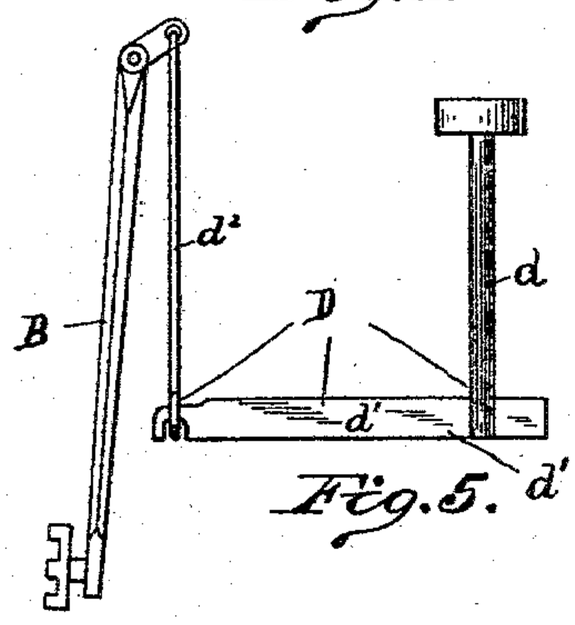

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

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TYPE WRITING MACHINE.

No. 490,235. Patented Jan. 17, 1893.

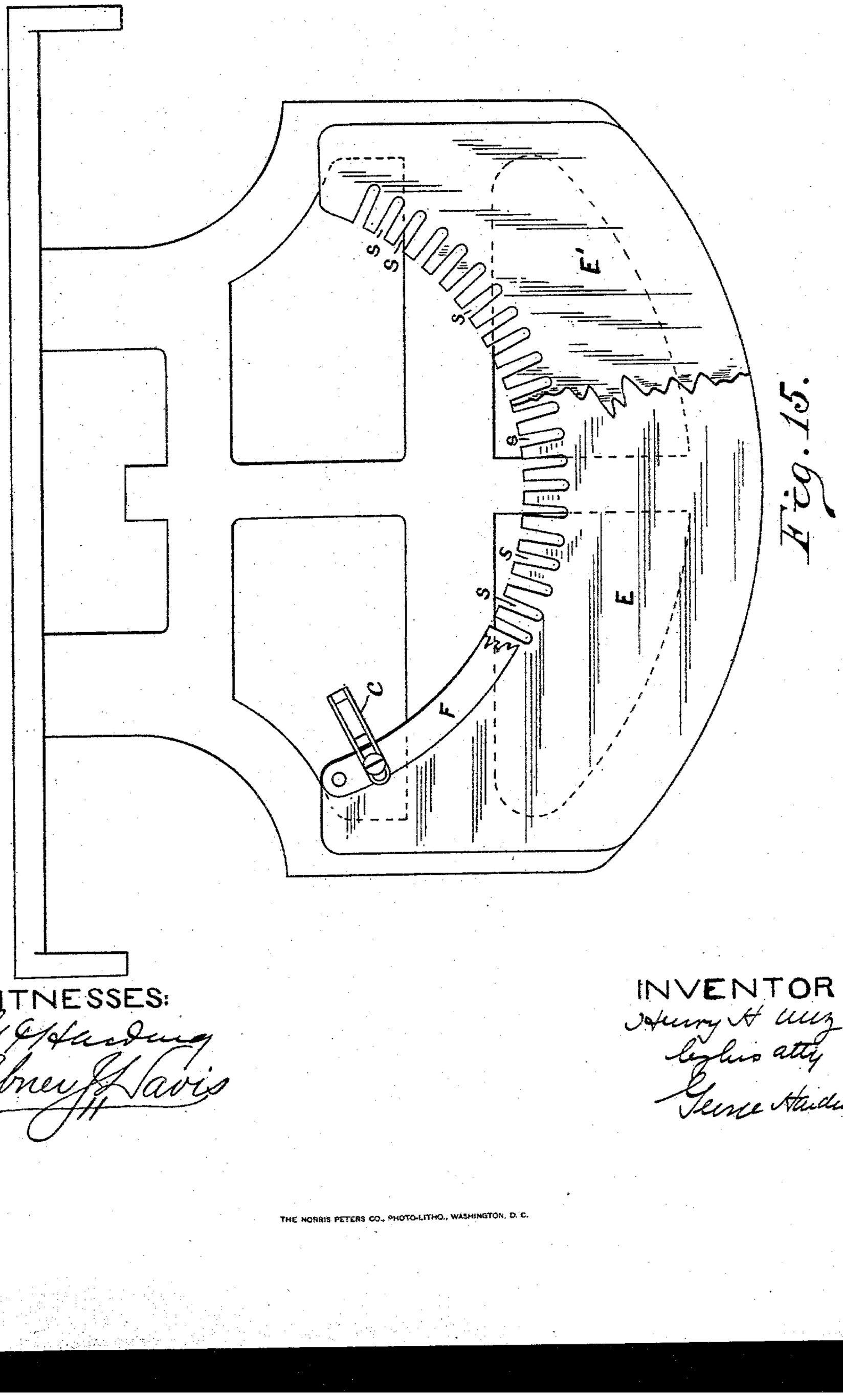

Fig. 15.

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UNITED STATES PATENT OFFICE.

HENRY H. UNZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE NATIONAL TYPE WRITER COMPANY, OF PENNSYLVANIA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,235, dated January 17, 1893.

Application filed January 23, 1889. Serial No. 297,257. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. UNZ, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a true and exact description, due reference being had to the drawings which accompany and form part of this specification.

My invention relates more especially to what are known as direct operating keys and type bars of a type-writer, and consists in a novel form of type bar, and also a novel connection of the various parts whereby a more perfect result is obtained, and also to the arrangement of the plates of the machine in such a manner that the type operating end of the key is guided during its movement.

In the drawings; Figure 1, is a central section through the key board, also showing platen. Fig. 2 is a side view of direct operating key. Fig. 3, is an end view of Fig. 2, toward the outer end of the machine. Fig. 4, is a bottom end view of Fig. 2. Fig. 5, a view of modified form of Fig. 2. Fig. 6, a view of inner arm of Fig. 5. Fig. 7, a view of my improved type bar. Fig. 8, is a front view of my improved type bar. Fig. 9, is a side view of type bar. Fig. 10, is a sectional view through the type bar near the pivotal point. Fig. 11, is a section through the type bar at x—x, Fig. 9. Fig. 12, is a section of type bar on line y—y, Fig. 9. Fig. 13, is a section of type bar at z—z. Fig. 14, a section of modified form of type bar, (the section being taken on the type bar at the position y—y, Fig. 9.) Fig. 15, is an upper plan view of machine showing serrations in plates, the left hand portion showing serrations in both plates, while the right hand portion is broken away showing that portion of top plate removed and serrations existing in the lower plate only.

Similar letters denote similar parts throughout the drawings.

A represents the platen. B, the type bar. C the type bar hanger. D, the direct operating key. E, the upper plate of the machine. E′, the lower plate of the machine. F, the support for the type bar hanger.

The direct operating key, D, is formed of the two arms d, d^2, and the rod or bar d', which connects these arms. The type bar is connected to the arm d^2, and the operating finger key to the arm d. The arm d^2 may be a flat bar as shown in Figs. 1, 2, and 3, or may be a wire as shown in Fig. 5. The arm d^2 is connected to the rod or bar d' by a pivot connection as shown in Figs. 1 and 2, or if a wire be used, the end of the wire is bent over into a hook so that it can be passed over the end of the connecting bar d'. This enables the type bar carrying arms to have a slight movement on the point where it is joined to the connecting bar, and also allows these arms d^2 to be separated from the connecting rod or bar d'. My improved type bar has lateral projections from the main body of the type bar, thus forming a truss and giving rigidity to the type bar without greatly increasing its bulk, and as the strain decreases directly with the distance from the pivotal point of the type bar, I may construct this truss portion so that it shall vanish to a point at or near the lower end of the type bar.

The plates E, and E′ have serrations, S, at the points where the type bar carrying arms d^2 of the direct operating keys, pass through them, thus forming guides to prevent a too great play of these arms d^2. If desired, the serrations may exist in only one plate, in which case the other plate is cut away at the points where the type bar operating arms extend upward. As may be seen, these serrations extend to the inner end of the plates E, E′, thus allowing a ready removal of the type bar operating arms d^2 without removing any other part of the machine. In the right hand portion of Fig. 1 is shown a view where these serrations exist in only one of the plates, the other plate being cut away.

Having now fully described my invention, what I claim and desire to protect by Letters Patent, is;—

1. In a typewriting machine, in combination, a direct operating key having two vertical arms and a rod or bar connecting said arms, a type bar, said type bar being connected to the upper end of the inner vertical arm and said connecting rod or bar being

loosely connected to the lower portion of said inner arm.

2. In a typewriting machine, in combination, a direct operating key having two vertical arms, a rod, or bar connecting said arms, a type bar connected to the inner vertical arm, a plate, serrations in the inner end of said plate adapted to receive and guide the inner vertical arm of said direct operating key.

3. In a typewriting machine, in combination, a direct operating key having two vertical arms and a rod or bar connecting said arms, a type bar connected to the inner vertical arm, plates E and E′, serrations in said plates at their inner ends adapted to receive and guide the inner vertical arm of said direct operating key.

4. As an improved article of manufacture, a type bar provided with a trussed portion integral with the main portion of the type bar.

5. As an improved article of manufacture, a type bar provided with a trussed portion integral with the main portion of the bar, said trussed portion vanishing inward toward the lower end of said bar.

In witness whereof I have hereunto signed my name this 19th day of January, 1889.

HENRY H. UNZ.

Witnesses:
G. I. HARDING,
ERNEST HOWARD HUNTER.