No. 719,399. PATENTED JAN. 27, 1903.

S. T. & C. H. WELLMAN.

GRIPPING DEVICE FOR FURNACE CHARGING MACHINES.

APPLICATION FILED APR. 26, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

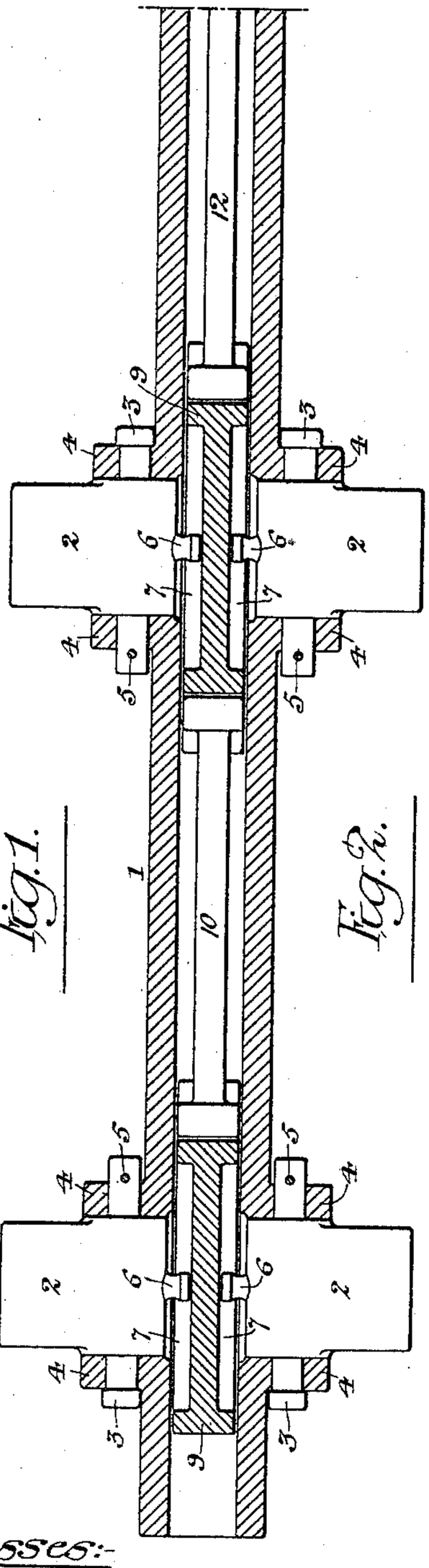

Fig. 1.

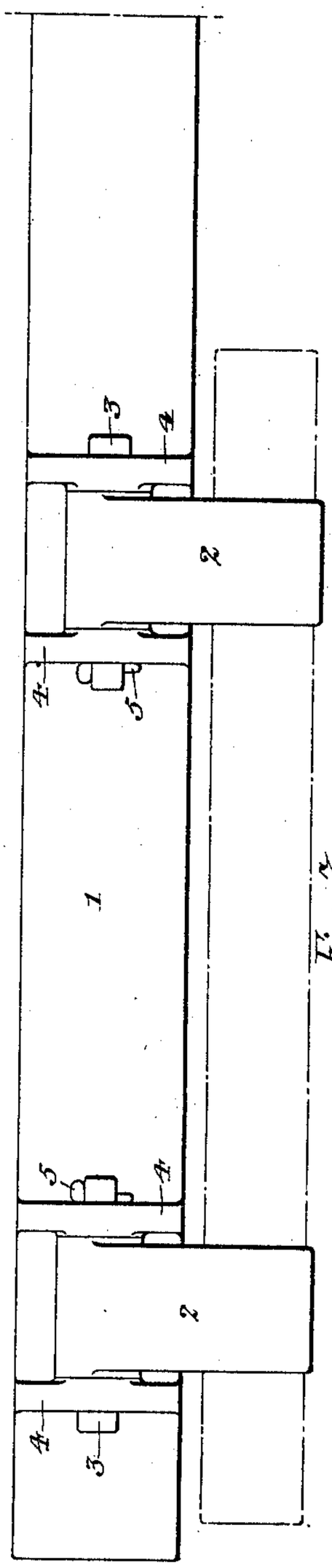

Fig. 2.

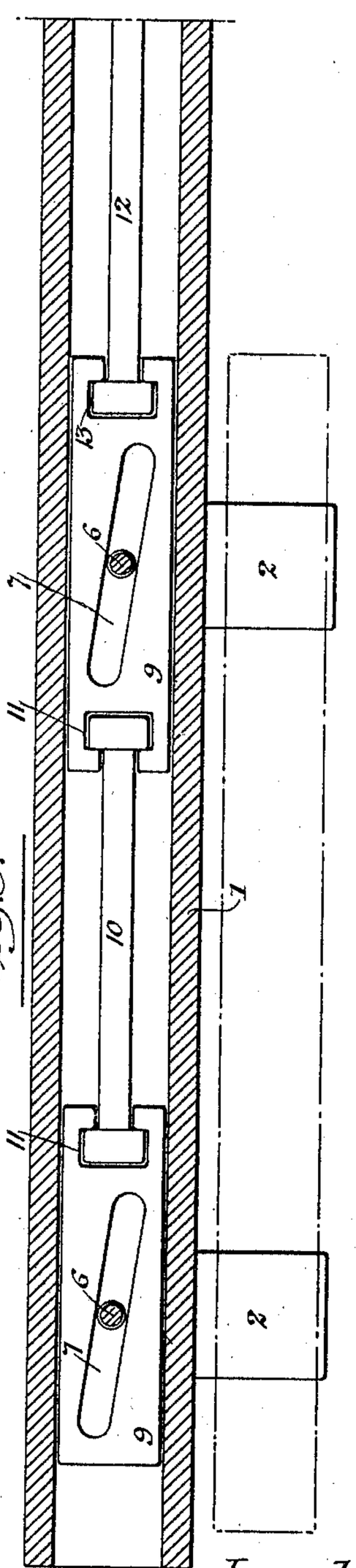

Fig. 3.

Witnesses:-
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Hamilton D. Turner

Inventors:
Samuel T. Wellman,
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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

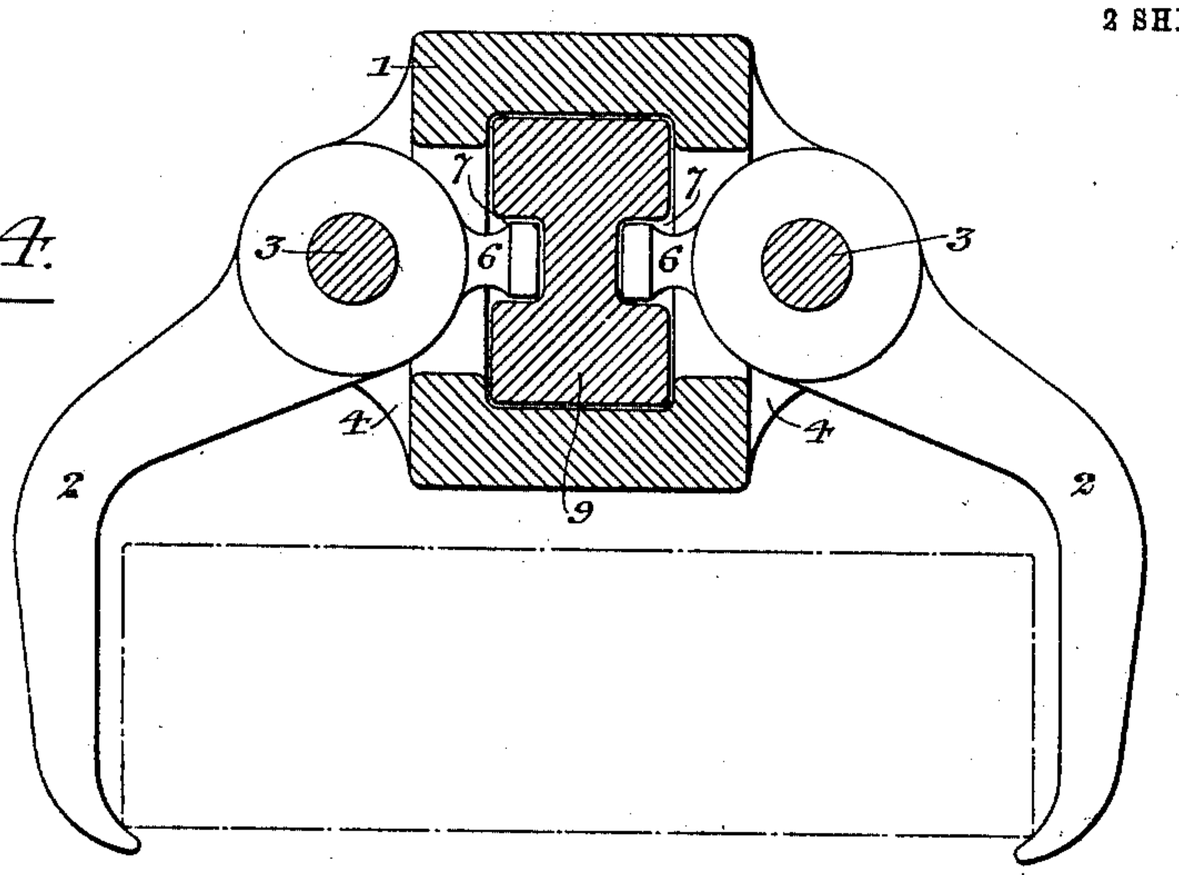


Fig. 5.

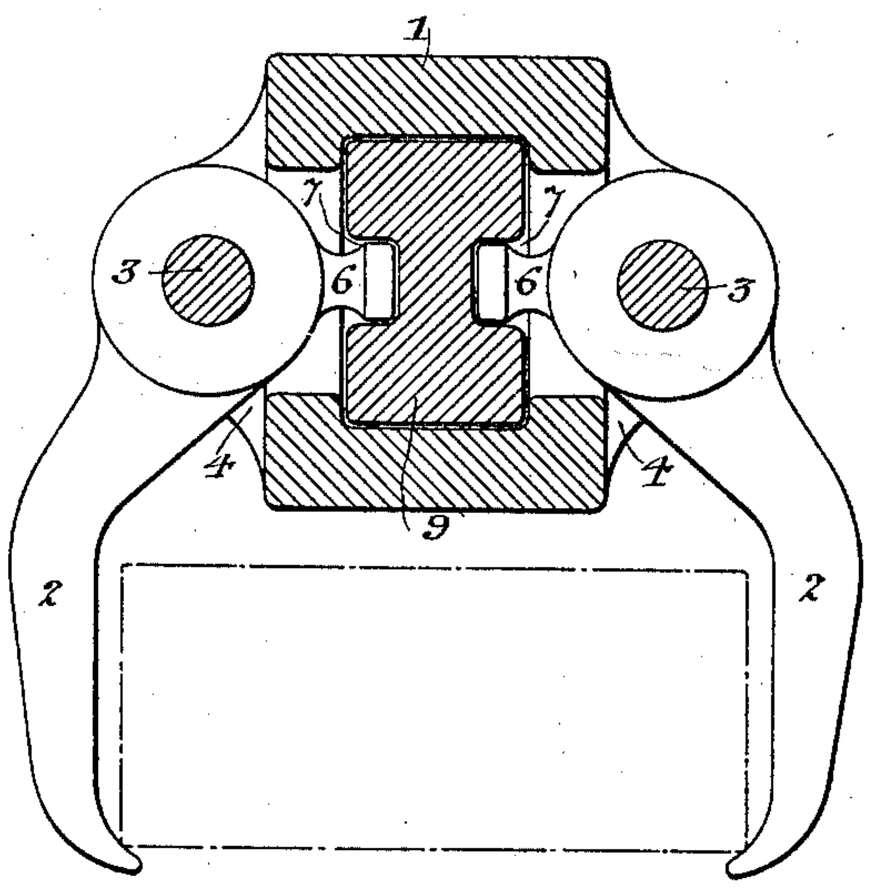
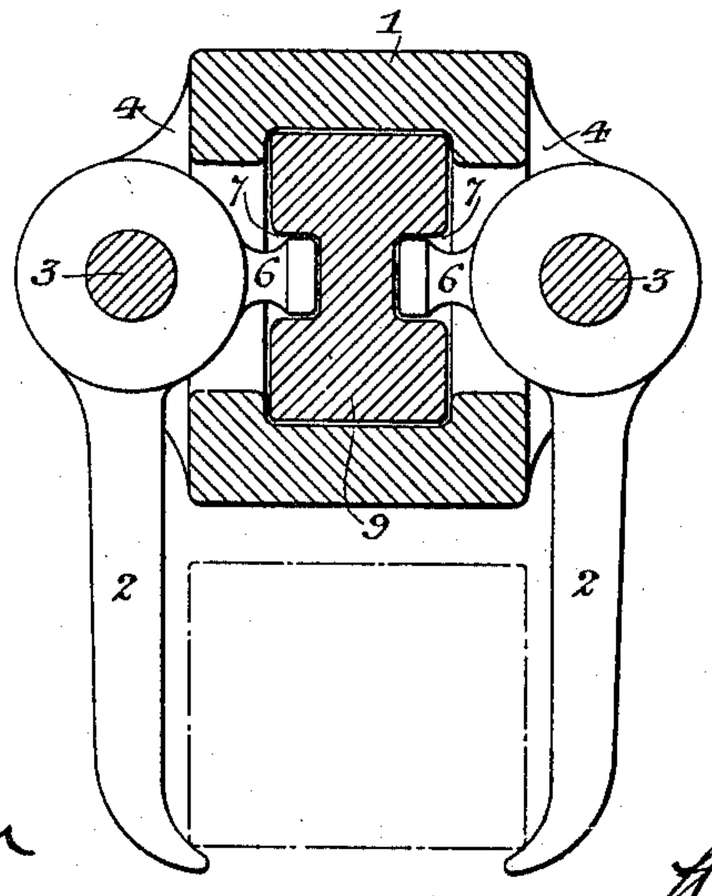


Fig. 6.



Witnesses:-
Chas. D. Elon.
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UNITED STATES PATENT OFFICE.

SAMUEL T. WELLMAN AND CHARLES H. WELLMAN, OF CLEVELAND, OHIO, ASSIGNORS TO THE WELLMAN-SEAVER-MORGAN ENGINEERING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

GRIPPING DEVICE FOR FURNACE-CHARGING MACHINES.

SPECIFICATION forming part of Letters Patent No. 719,399, dated January 27, 1903.

Application filed April 26, 1902. Serial No. 104,794. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL T. WELLMAN and CHARLES H. WELLMAN, citizens of the United States, and residents of Cleveland, Ohio, have invented certain Improvements in Gripping Devices for Furnace-Charging Machines, of which the following is a specification.

Our invention relates to a gripping device for handling ingots, blooms, billets, bars, or other forms of metal (hereinafter, for convenience, simply termed "ingots") which it is desired to place in or withdraw from a furnace.

One object of our invention is to so construct said device that it can be readily adapted for handling ingots of different sizes, a further object being to prevent the heat from interfering with the performance of their intended functions by the devices employed for operating the jaws of the gripper. These objects we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view, partly in plan and partly in section, of a gripping device constructed in accordance with our invention. Fig. 2 is a side elevation of said gripping device. Fig. 3 is a view partly in elevation and partly in vertical section, and Figs. 4, 5, and 6 are transverse sections illustrating different forms of gripping-jaws employed in order to adapt the device for handling ingots of different sizes.

1 represents the main bar of the gripping device, which may be carried by a machine similar to the charging-machine forming the subject of our Patent No. 569,075, dated October 6, 1896, whereby it can be readily introduced into or withdrawn from the furnace and can be raised and lowered, as well as moved back and forth. This bar is hollow or tubular and carries two pairs of gripping-jaws 2, each hung by a longitudinal pin 3 to ears 4, projecting laterally from the bar 1, the pins 3 being normally retained in position by means of keys 5 or other readily-detachable retainers, so that said pins can be readily removed or replaced when it is desired to change the gripping-jaws. Each of the gripping-jaws projects into an opening in the side of the bar 1 and has an inwardly-projecting lug 6, which engages with a cam-slot 7 in the side of a block 9, free to slide longitudinally in the central opening of the bar 1, one of these blocks being employed for each pair of gripping-jaws. The two blocks 9 are connected by a rod 10, which has at each end a T-head adapted to be slipped laterally into a T-shaped slot 11 in the block 9, the T-heads fitting loosely in the slots, so that while the rod 10 serves to connect the two blocks 9 in such manner as to insure their joint action it provides for a limited amount of play of one block independently of the other and prevents any interference with the proper operation of the blocks which might otherwise be caused by the heat to which the device is subjected when it is inserted into the furnace.

An operating-rod 12 has a T-head engaging a T-shaped slot 13 in one of the blocks 9, this rod being moved longitudinally by hand or power-actuated means on the charging-machine, so that longitudinal movement independent of the bar 1 can be imparted to the blocks 9 in order to swing the gripping-jaws 2 upon their pivot-pins in such manner as to cause them to open or close.

Various forms of gripping-jaws are employed—such, for instance, as those having the extreme bend shown in Fig. 4 when the ingot is of extreme width, or those having a slight bend, as in Fig. 5, when the ingot is of moderate width, or those without bend, as in Fig. 6, when the ingot is extremely narrow, each of the jaws having, however, a certain range of movement, so that change in the jaws is only required when there is an extreme change in the width of the ingot.

Although we have shown the bar as having two pairs of gripping-jaws, the same may be provided with but a single pair if intended for handling short ingots; or, on the other hand, there may be more than two pairs when the ingots to be handled are exceptionally long.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. An ingot-handling device comprising a hollow bar having one or more pairs of gripping-jaws hung thereto and one or more cam-blocks longitudinally movable in the bar and engaging said gripping-jaws, substantially as specified.

2. An ingot-handling device comprising a hollow bar, one or more pairs of gripping-jaws hung thereto and each having an inwardly-projecting lug and one or more blocks movable longitudinally in the hollow bar and each having in each side an inclined groove or slot, engaging with the lug of one of the gripping-jaws, substantially as specified.

3. An ingot-handling device comprising a bar, two longitudinally-separated pairs of gripping-jaws mounted thereon, and a pair of similarly-spaced but connected devices for swinging said jaws, substantially as specified.

4. An ingot-handling device comprising a bar, two longitudinally-separated pairs of gripping-jaws mounted thereon, a pair of similarly-spaced but connected devices for swinging said jaws, and a longitudinally-movable rod for operating the same, substantially as specified.

5. An ingot-handling device comprising a hollow bar, two longitudinally-separated pairs of gripping-jaws mounted thereon, two cam-blocks movable longitudinally in the bar for operating said jaws, and a loosely-fitting rod connecting said cam-blocks, substantially as specified.

6. An ingot-handling device comprising a hollow bar, two longitudinally-separated pairs of gripping-jaws mounted thereon, a pair of cam-blocks longitudinally movable in the hollow bar for operating said gripping-jaws, and a connecting-rod for said blocks, having T-heads adapted to T-shaped slots in the blocks, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL T. WELLMAN.
CHARLES H. WELLMAN.

Witnesses:
C. W. COMSTOCK,
W. A. JONES.