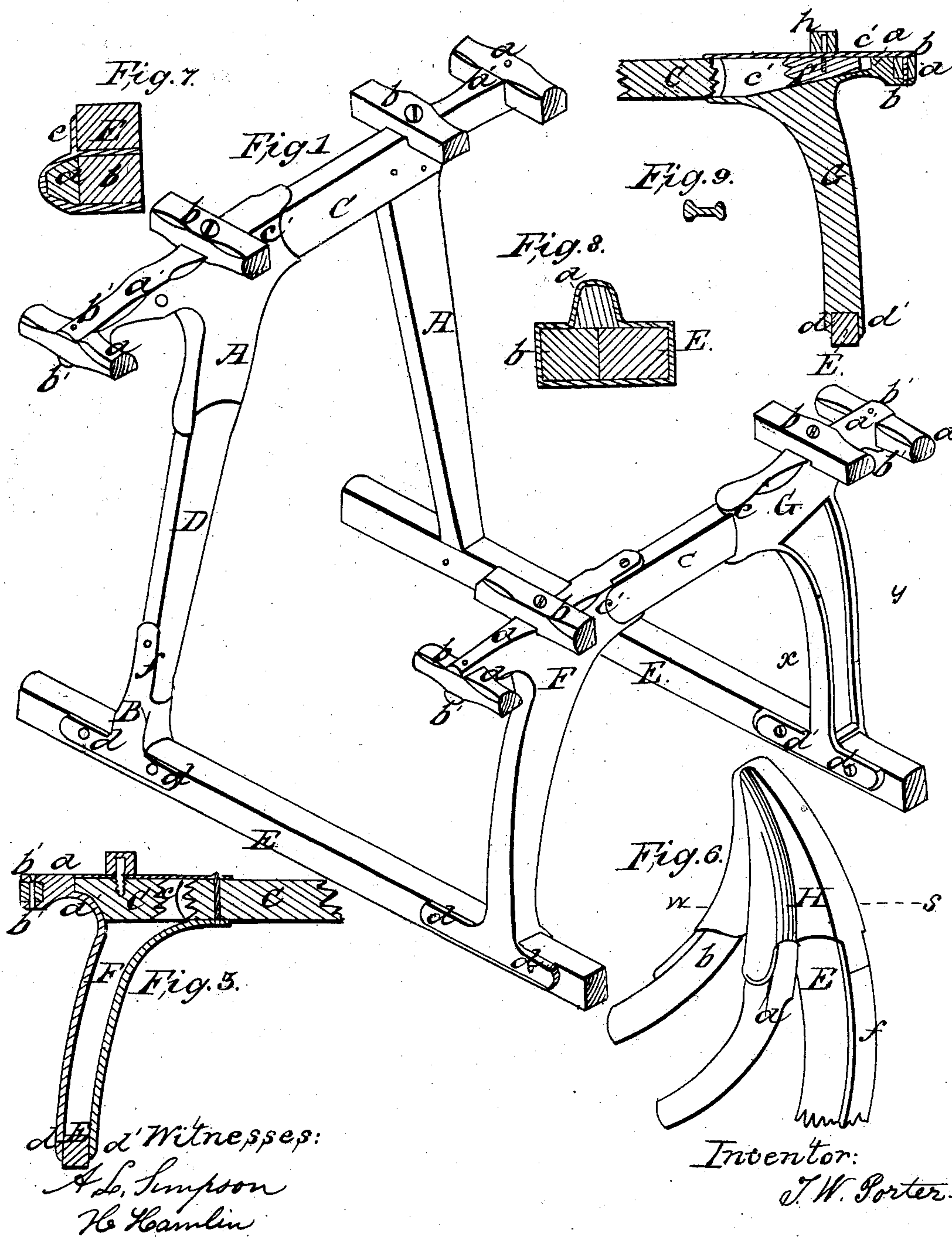


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Sleigh.

Patented June 19, 1866.

No. 55,705.

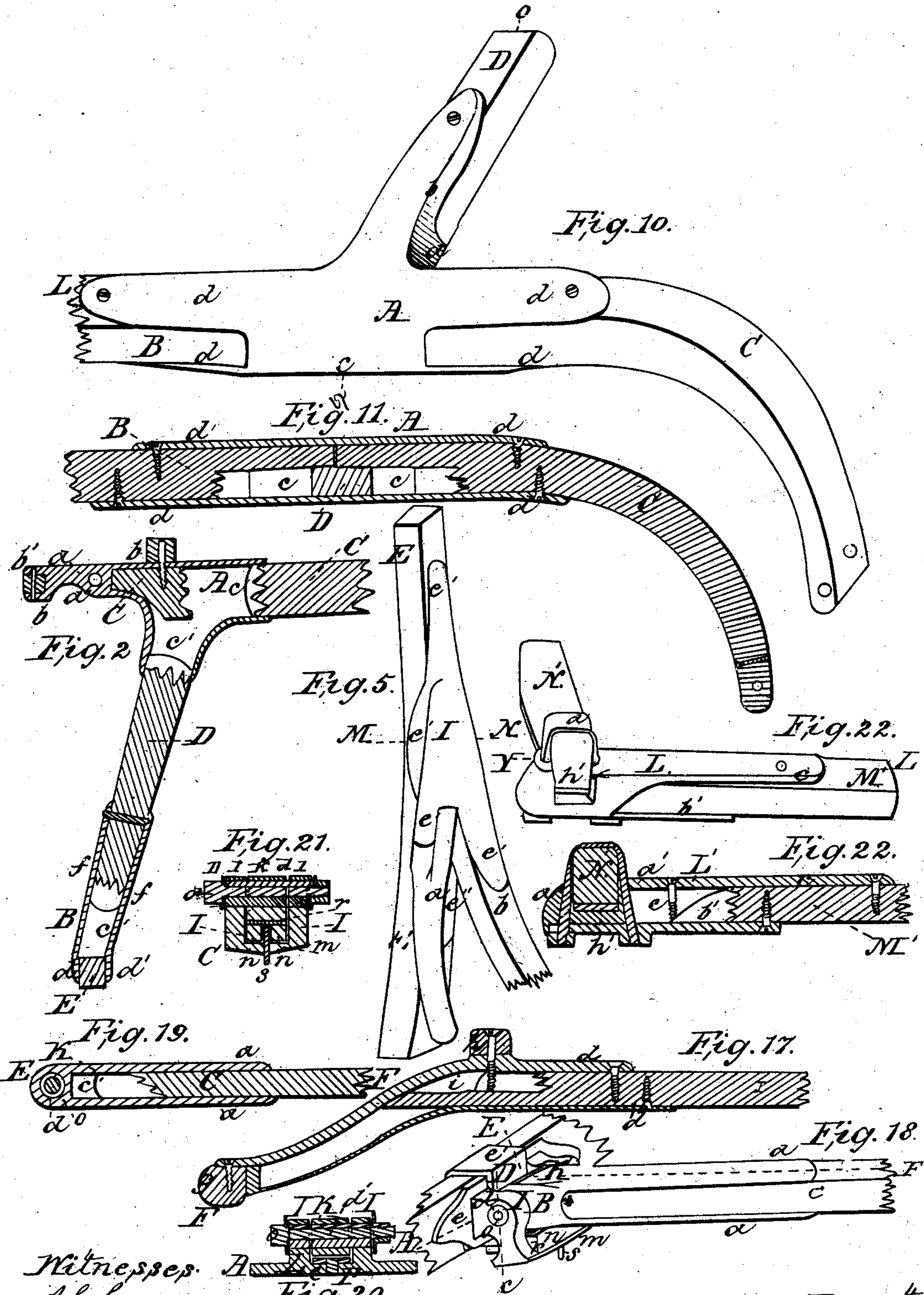


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Witnesses:  
 A. Simpson  
 H. Hawlin

Inventor:  
 T. W. Porter



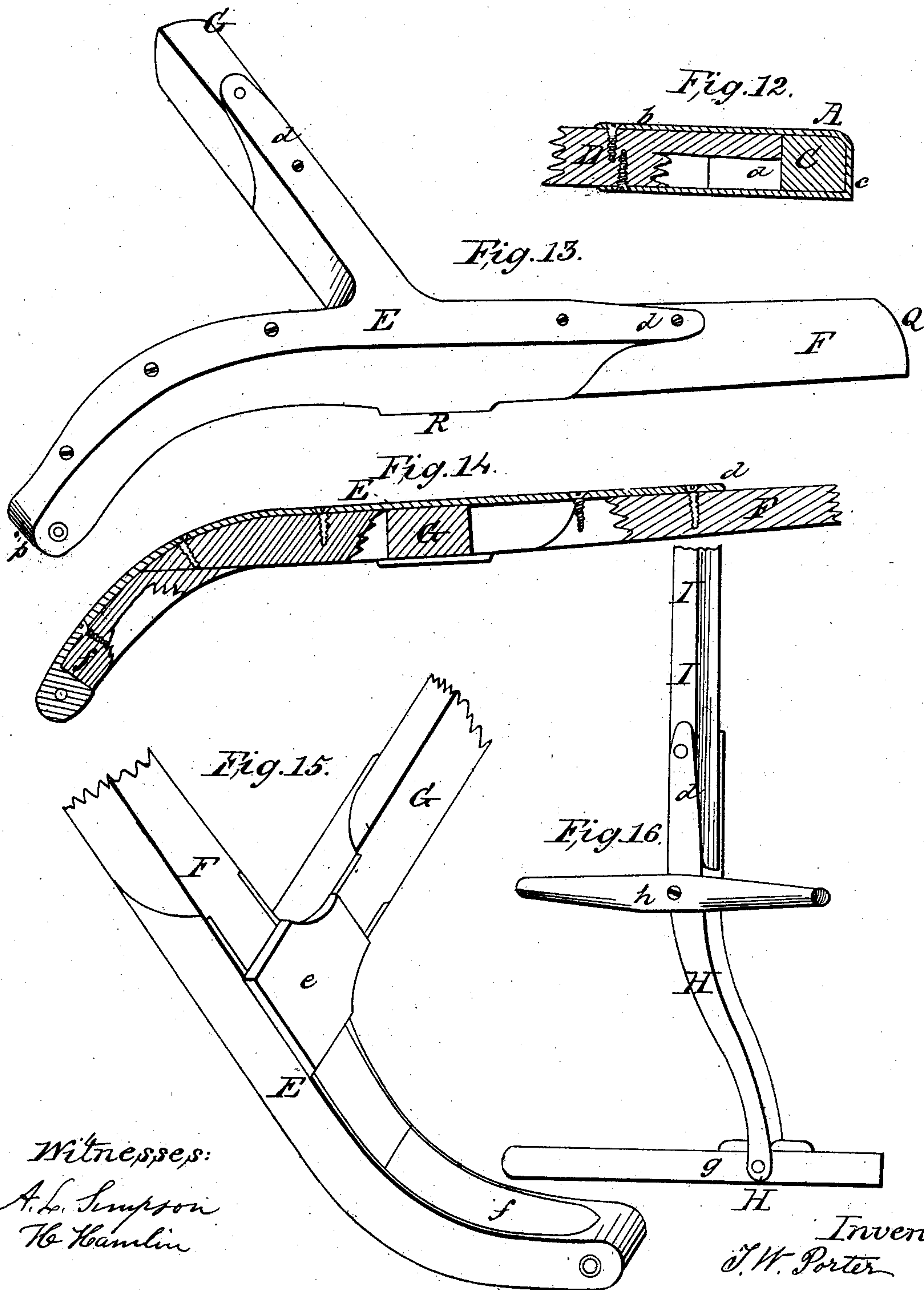
T. W. PORTER.

3 Sheets—Sheet 3.

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Witnesses:  
A. L. Simpson  
H. Hamlin

Inventor  
T. W. Porter



# UNITED STATES PATENT OFFICE.

T. W. PORTER, OF BANGOR, MAINE.

## IMPROVEMENT IN SLEIGHS.

Specification forming part of Letters Patent No. 55,705, dated June 19, 1866.

*To all whom it may concern:*

Be it known that I, T. W. PORTER, of Bangor, in the county of Penobscot and State of Maine, have invented a new and useful Improvement in Vehicles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view, showing a hollow metallic sleigh-standard, an H-standard, and metallic sockets connecting a wooden standard with the bar and runner. Fig. 2 is a longitudinal vertical section of the wooden standard and sockets. Fig. 3 is a longitudinal vertical section of the hollow standard. Fig. 4 is a longitudinal vertical section of the H-standard. Fig. 5 is a perspective view of a metallic coupling connecting the runner-rail and fender. Fig. 6 is a perspective view of a metallic cap connecting the runner-rail and fender. Fig. 7 is a transverse section of Fig. 5, taken in the line M N. Fig. 8 is a transverse section of Fig. 6, taken in the line W S. Fig. 9 is a transverse section of the H-standard, taken in the line X Y. Fig. 10 is a perspective of a metallic coupling connecting the shaft and cross-bar and also connecting the two parts of the shaft.

In the construction of vehicles the three most desirable qualities are strength, lightness, and graceful form. Strength and lightness are to a great extent antagonistic qualities, and one of the chief obstacles to their union arises from the difficulties presented in joining the various constituent parts of the vehicle so as to present a neat and durable connection or joint; and it not unfrequently occurs that either grace of form or durability must be sacrificed, for the reason that either, in the given case, precludes the other. These facts apply with full force when the wood and wood are to be joined, as in almost all such cases the two parts must, in view of style and lightness, be of equal thickness, and to effect a union by the common method of mortise and tenon one part must be nearly two-thirds and the other more than one-third cut away.

The nature and design of this invention is to furnish a cheaper, neater, and stronger method of connecting certain parts of vehicles,

and also to construct of malleable iron some of the more difficult irons which have been heretofore produced by forging from wrought-iron, as also to form of malleable iron, at greatly reduced cost and in more graceful form, some of the parts which have heretofore been constructed of wood or by a combination of wood and wrought-iron.

Similar letters of reference indicate corresponding parts in the several figures of the same device.

In the drawings, Fig. 1 represents sections of sleigh-runners, E E, a wooden standard, D, connected by a metallic coupling, A, with the bar C, and with the runner by a double T-coupling. (Marked B.) F is a hollow iron standard, G a skeleton or H-shaped standard, and A' a wooden standard, connected with the runner and bar in the usual manner. The coupling or bar end A is formed with sockets *c'* for the reception of the bar C and standard D. It is also formed with a short arm, *a'*. At the outer part or end of this arm is a recess or slot between *b' b'*, in which is inserted the fender-rail *a*. This coupling is shown in Fig. 2 in longitudinal vertical section, with parts of the bar and standard broken away to show the sockets *c'*. It is formed to receive the bar, standard, and fender at their full size, and can be formed to any desired pattern or strength at less cost than the usual method of construction. *b* is the body or inner rail.

The double T-coupling (marked B) is formed with a socket, *c'*, in which the lower end of the standard D is inclosed. From this socket project, along the standard, the straps *f f*, while at the lower part of the socket are formed the T-parts *d d*, between which the runner E is inserted. No mortise or tenon is employed, and the wrought-iron single T is dispensed with. This coupling is shown in longitudinal vertical section in Fig. 2, with a part of the standard broken away to show the socket *c'*. The hollow standard F is formed with a socket, *c'*, to receive the bar C. It is also formed with lips *b'* on the end of arm *a'* to receive the fender *a*, and with double I-straps *d' d'* to receive the runner E. This standard is hollow between bar C and runner E, and the arm *a'* may be either hollow or solid, as shown in longitudinal vertical section, Fig. 3, in which figure the bar



C is partly broken away to show the socket *c'*. G is also a metallic standard, formed like the hollow standard F, with the exception of the part between the bar C and runner E, this part being H-formed, as shown in the transverse section, Fig. 9, taken in the line X Y.

H, Fig. 6, is a metallic cap formed to receive the front ends of runner E, fender *a*, and body-rail *b*. This cap is used when the turn is a low one—i. e., when the end of the curved part of the runner rises but little above the bars C—in which case no dasher is used.

Fig. 8 is a transverse section of cap H, taken in line WS. In joining the runner, fender, and rail in the usual manner by wood-screws, all inserted in the runner, the wood is much cut away and the joining weak and insecure; but by using this cap neither piece of wood is secured directly to any other, each being secured to the cap, which holds all equally in place; besides, the difficulty of fitting the irons *f* over the "nose" is avoided.

I, Fig. 5, is a metallic coupling formed to connect the runner E, fender *a*, and rail *b*. It is formed with an angle-plate and straps, *e''*, secured to the back of runner E, and with recesses or sockets inside of straps *e'*, which receive the fender *a* and rail *b*. Fig. 7 is a transverse section of this coupling, taken in line M N. In the usual method of construction the fender and rail are both secured direct to the runner by screws, thereby weakening its strength, all the holes being within a small compass. By using this coupling each of the three pieces of wood is secured directly to it, thus increasing the strength and decreasing the cost, for both the joint and finish are embodied in the coupling. This coupling is employed when high or compound bends are used with dash-boards or dashers, and by means of this coupling the two bends or turns of the runner may be formed separately of two pieces of wood, one above and the other below the line M N.

By thus forming the wood in two parts several benefits accrue, among which are these:

Less difficulty in bending and less liability of breaking the wood, and less loss in that case than if the whole runner were lost. Besides, by bending the parts separately it may be done by bending machinery, as wheel-fellies are now bent, whereas, if bent whole, it can only be done by hand, compound bends being beyond the scope of any machine yet invented; and if the dasher be destroyed the cost of repair is much less, the facility for repairs being of prime importance in the construction of vehicles, they being of all manufactures most liable to casualties.

All the metallic parts claimed herein are designed to be formed of malleable iron, which affords an inexpensive and durable material, and also the facility of rapidly multiplying in finished form these varied parts, which, or their equivalents, have heretofore been constructed of wood or wood and wrought-iron, reference having been constantly had in the form and adaptation of these parts to secure the peculiar benefits of the qualities and facilities afforded by the above-named material of multiplying patterns in the same.

The method of fastening these parts to the wood is a matter of detail which every mechanic well understands, and the use of bolts, rivets, or screws, as each case may require, is not necessary to be fully detailed herein.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The metallic coupling or bar end A, Fig. 1, substantially as and for the purposes specified.
2. The metallic coupling or double T, marked B, Fig. 1, substantially as described and shown.
3. Forming metallic sleigh-standards with the sockets *c'*, Figs. 1, 3, and 4, in manner substantially as described, and for the purposes specified.

T. W. PORTER.

Witnesses:

A. L. SIMPSON,  
H. HAMLIN.