

(No Model.)

O. M. SWEET.

STEP LADDER.

No. 388,599.

Patented Aug. 28, 1888.

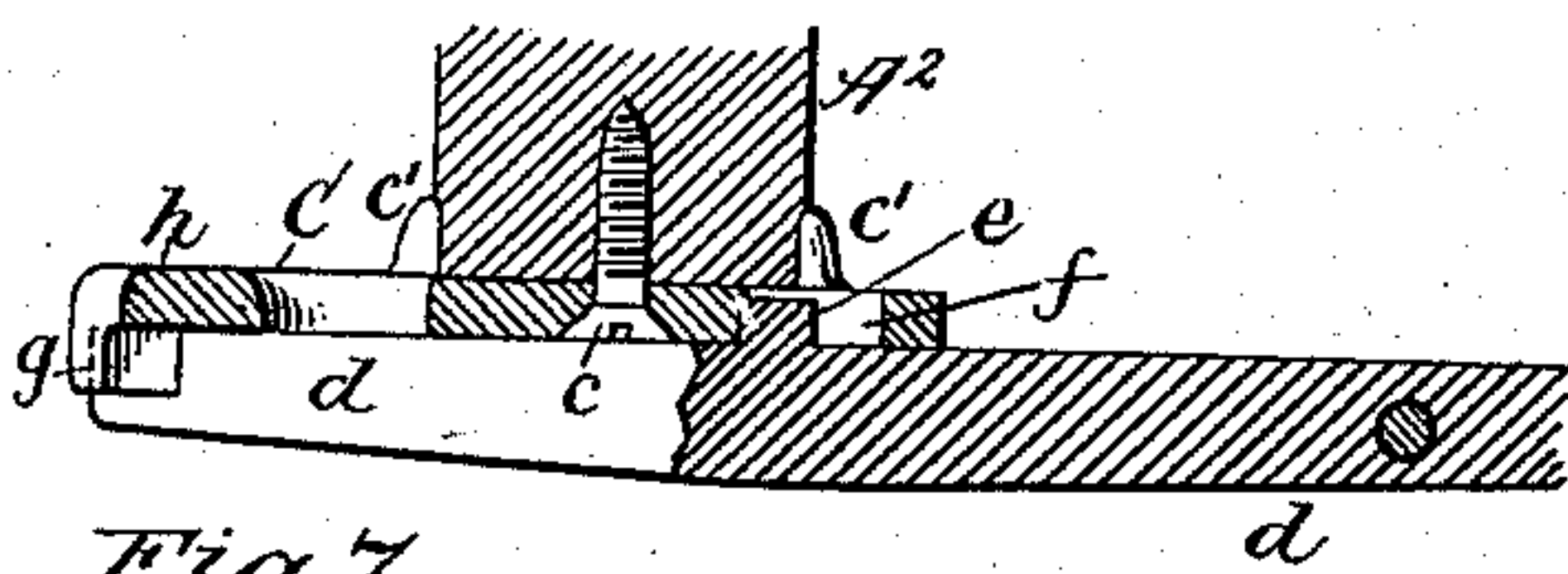
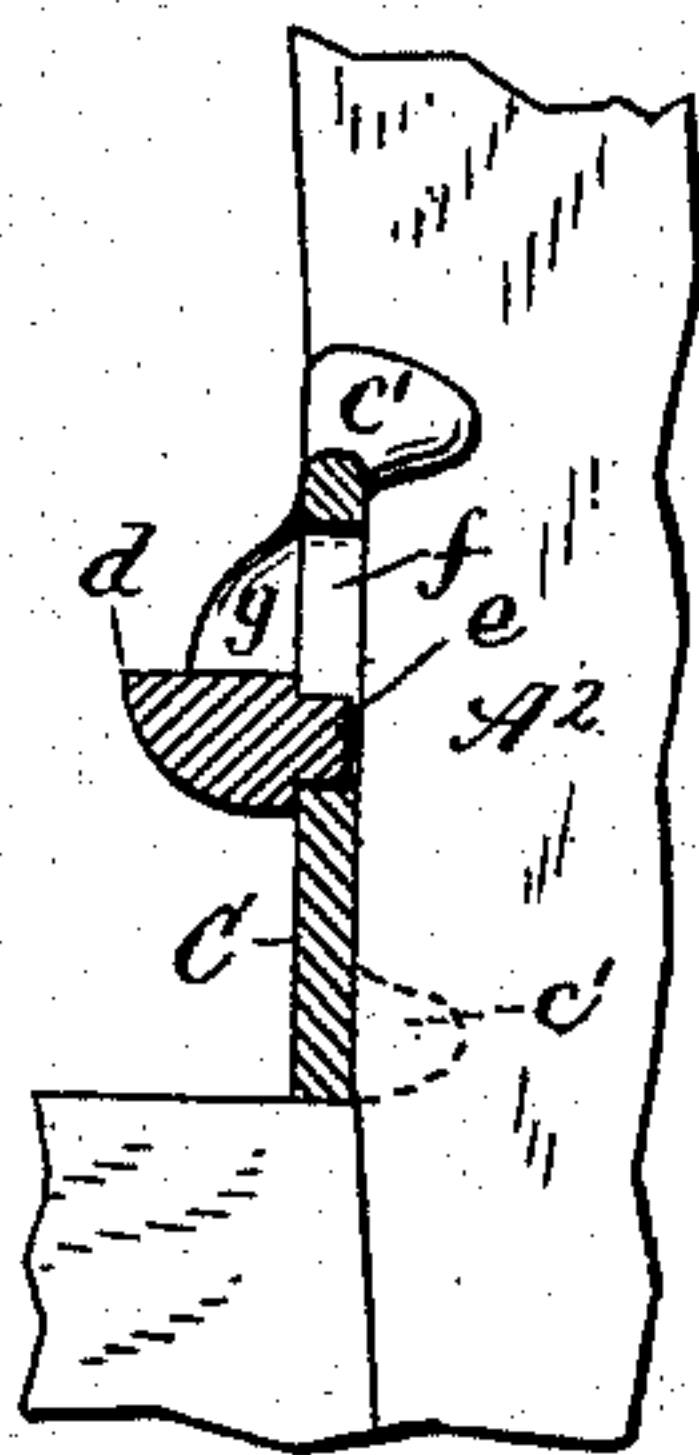
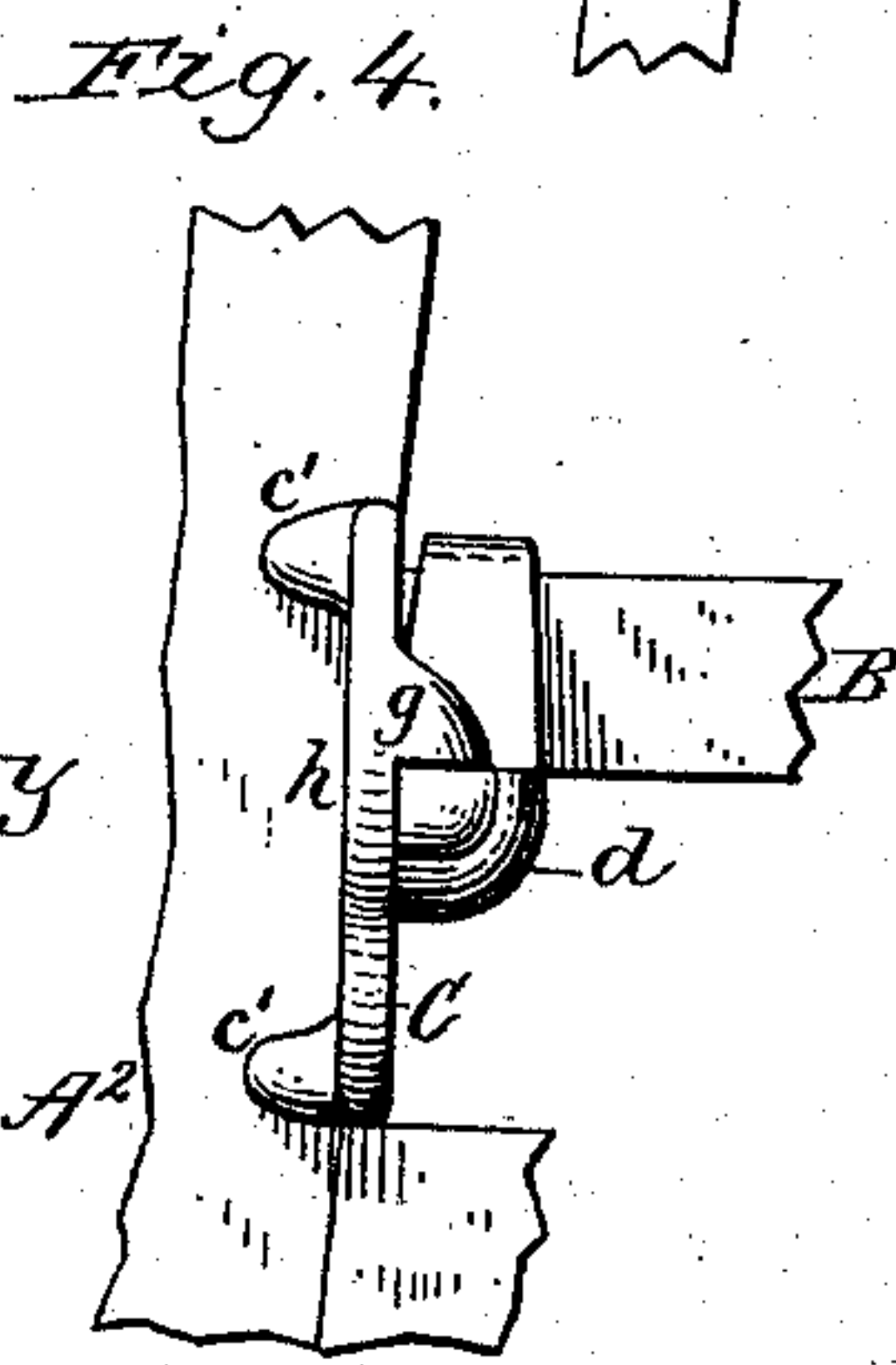
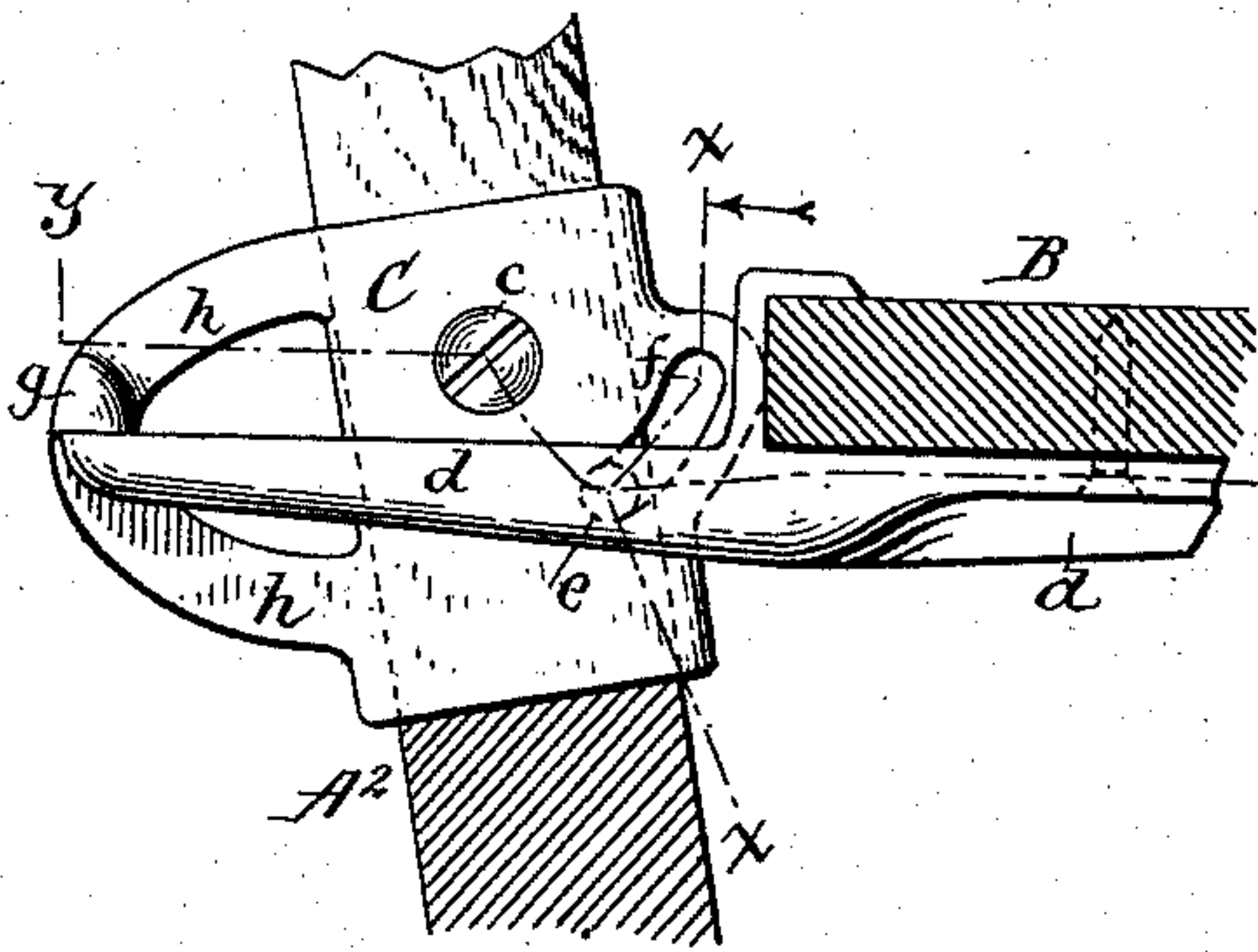
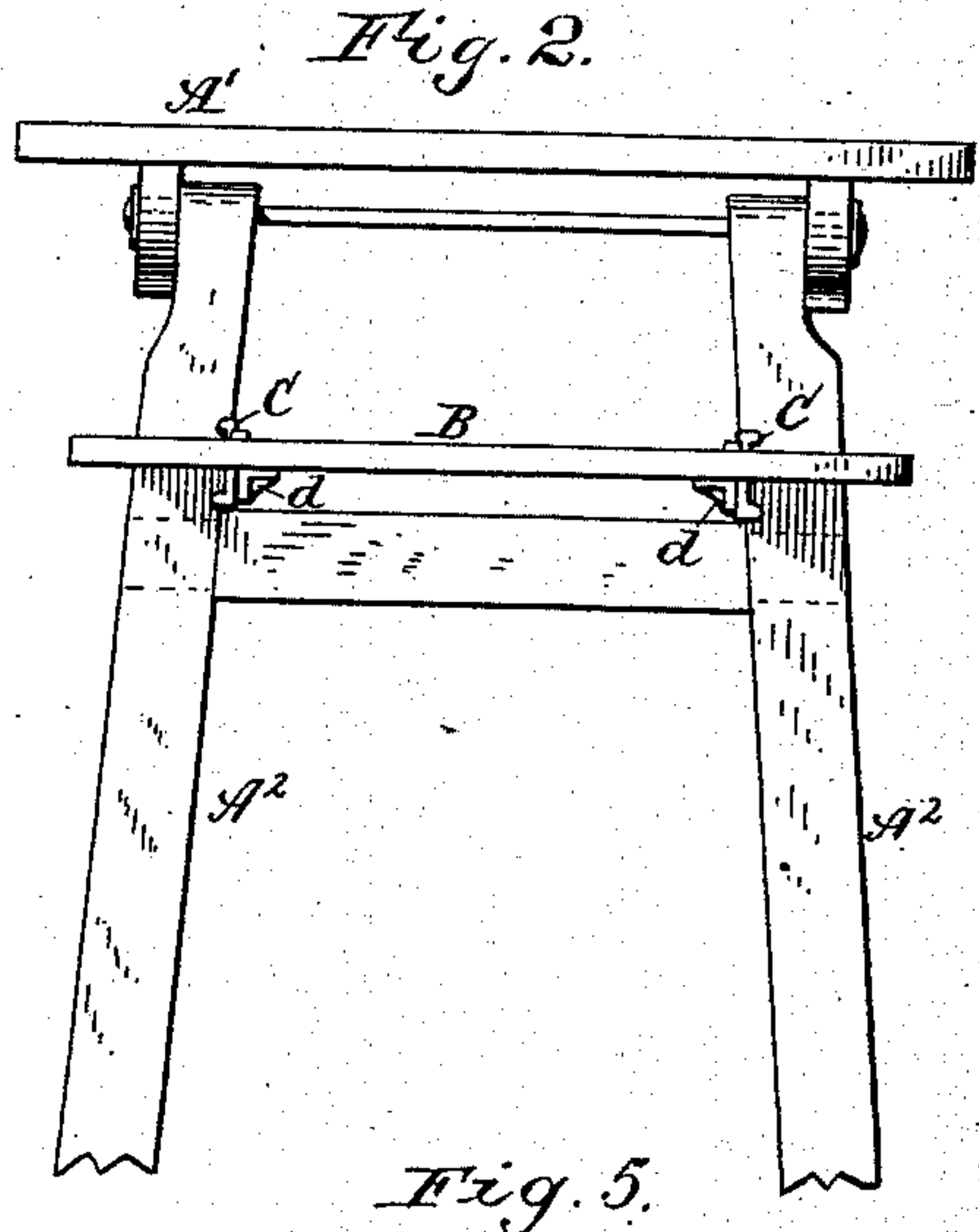
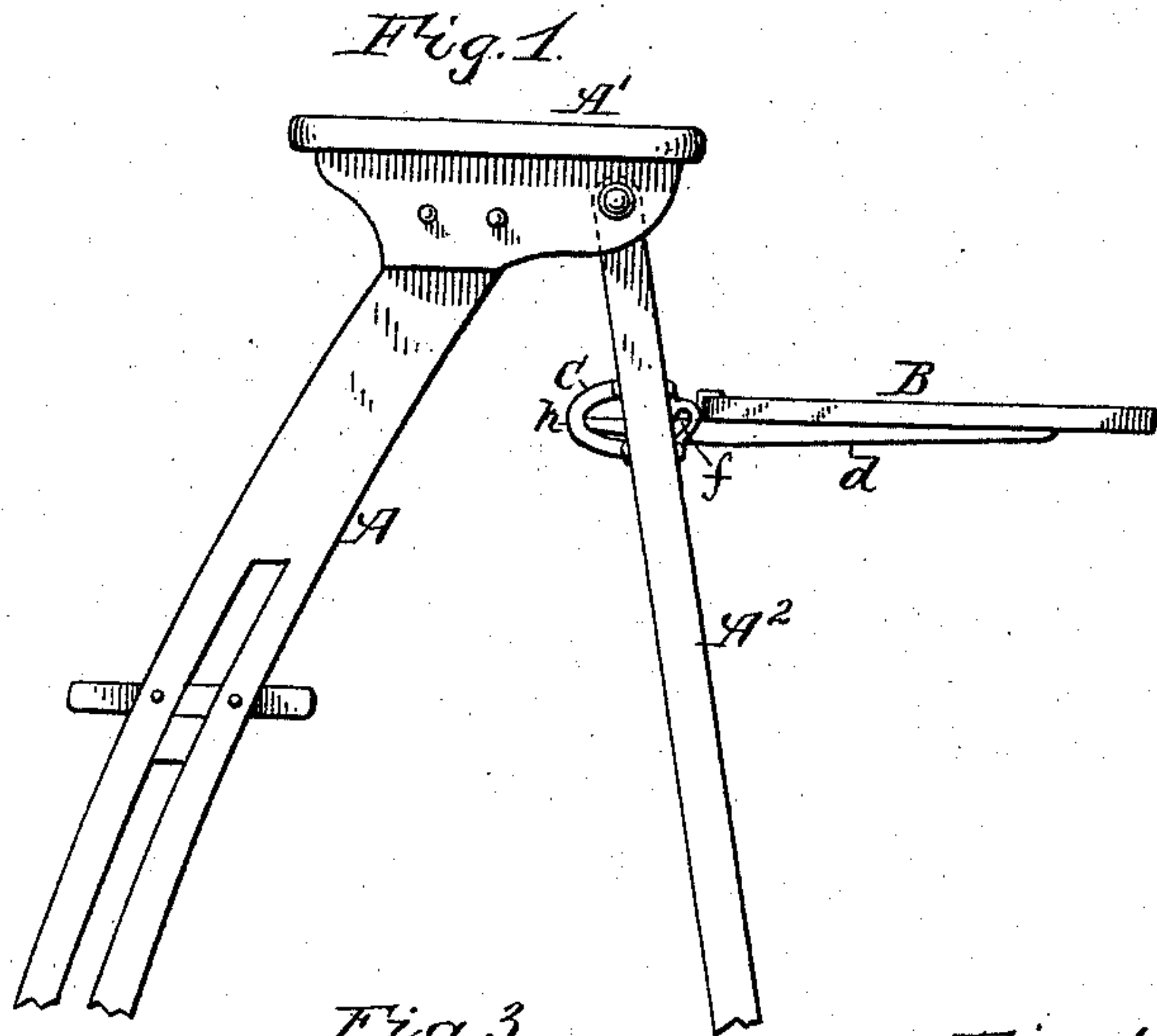
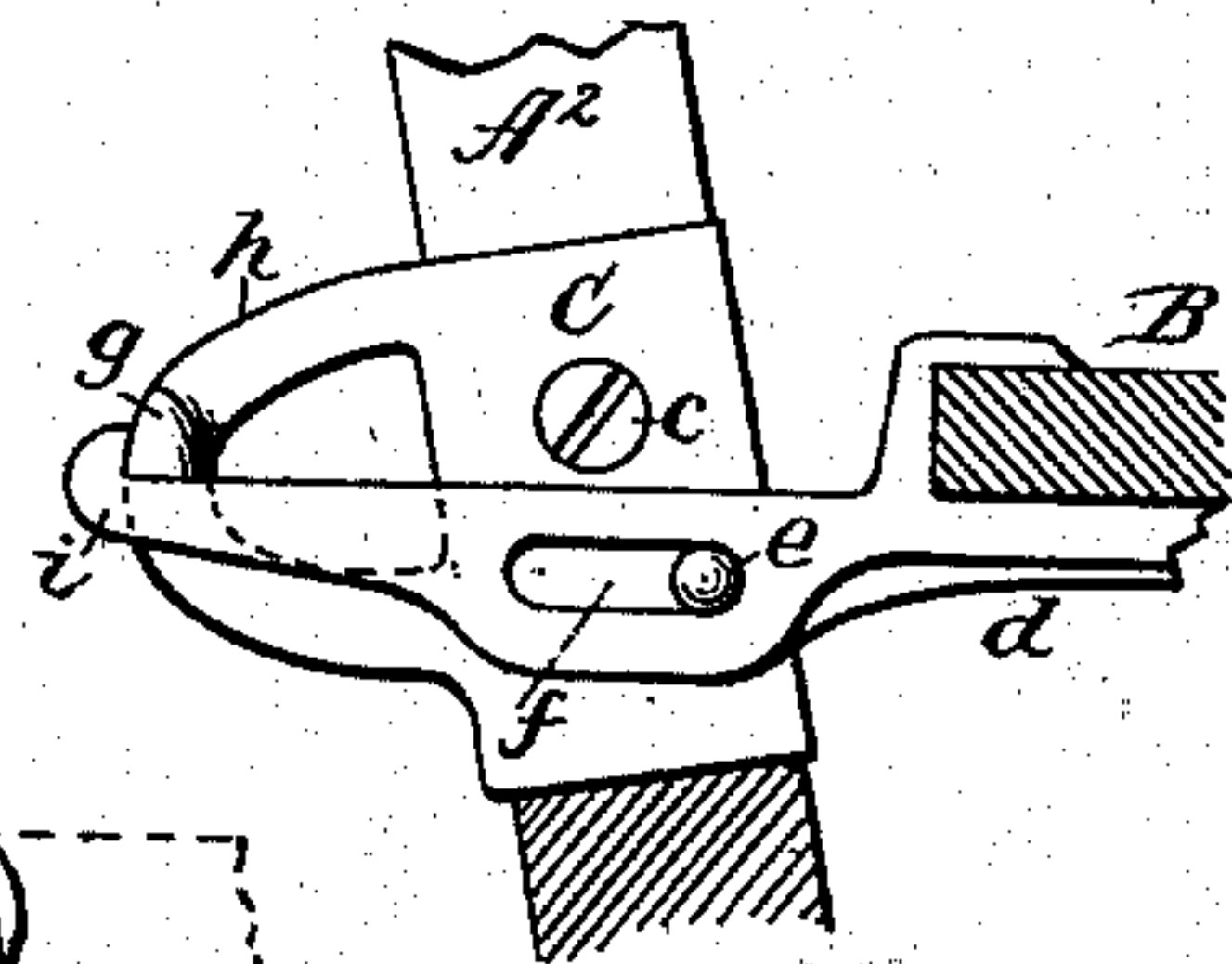
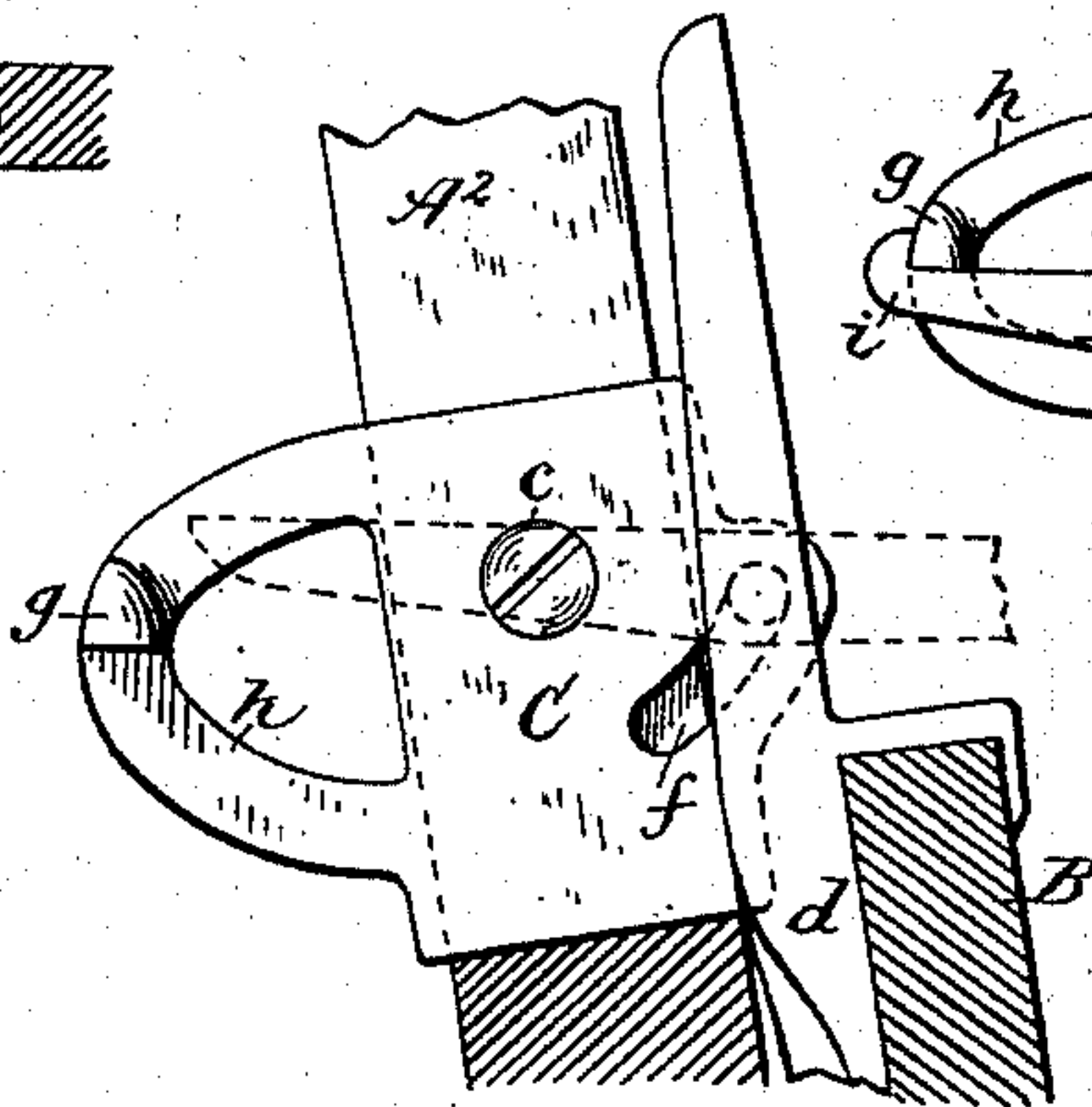
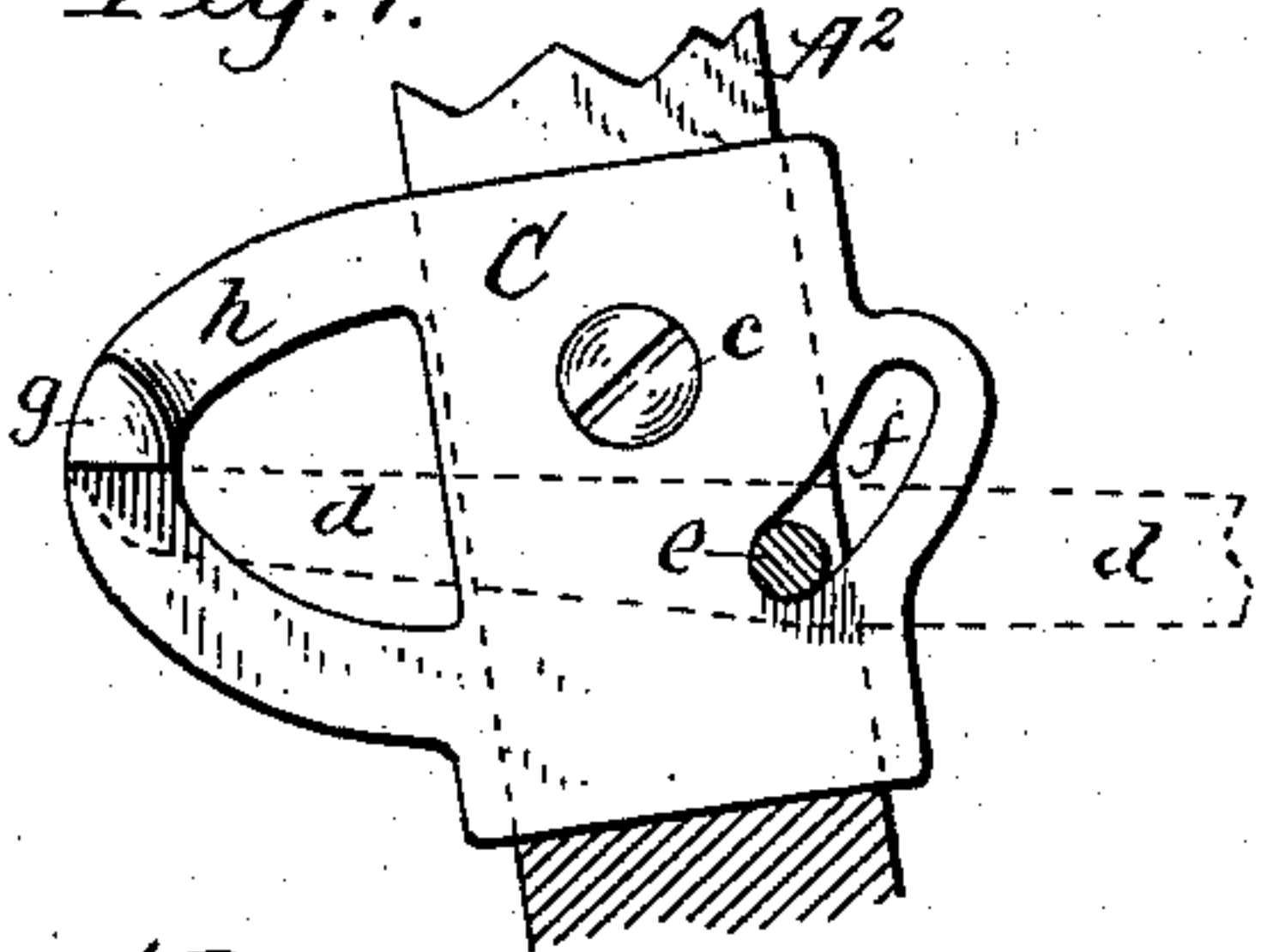


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

ORANGE M. SWEET, OF SILVER CREEK, ASSIGNOR TO THE EMPIRE MANUFACTURING COMPANY, OF FORESTVILLE, NEW YORK.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 388,599, dated August 28, 1888.

Application filed January 28, 1888. Serial No. 262,220. (No model.)

To all whom it may concern:

Be it known that I, ORANGE M. SWEET, of Silver Creek, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Step-Ladders, of which the following is a specification.

This invention relates to an improvement in that class of step-ladders which are provided with a shelf for supporting a pail or other article, and which can be folded against the body of the ladder with the hinged standard.

The object of my invention is to provide a strong, durable, and inexpensive connection between the pivoted shelf and the ladder which will permit the shelf to be readily folded and unfolded.

The invention consists of the improvements which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the upper portion of a step-ladder, showing the shelf in an elevated or unfolded position. Fig. 2 is a rear elevation thereof. Fig. 3 is an inside elevation, on an enlarged scale, of one of the brackets and supporting-arms whereby the shelf is attached to the hinged standard. Fig. 4 is a rear elevation of these parts. Fig. 5 is a cross-section in line *x x*, Fig. 3. Fig. 6 is a longitudinal section in line *y y*, Fig. 3. Fig. 7 is an inside elevation, on an enlarged scale, of one of the brackets to which the supporting-arms of the shelf are attached. Fig. 8 is a view similar to Fig. 3, showing the shelf folded against the standard. Fig. 9 is a sectional elevation showing a modified construction of my improved shelf attachment.

Like letters of reference refer to like parts in the several figures.

A represents the body of the ladder; A', the platform or top step, and A² the standard, hinged to the latter in the usual manner.

B represents the folding shelf, and C are metallic brackets or supports secured to opposite sides of the standard A², and to which the shelf B is movably attached. The brackets C are preferably secured to the standard A² by a single screw, *c*, and are provided at their edges with lips or teats *c'*, which bear against

opposite sides of the standard and prevent the brackets from turning on the screws *c*.

d represents the arms which support the shelf B, and to which the latter is secured by screws or otherwise.

The supporting-arms *d* are provided on their outer sides with horizontal studs or pivots *e*, which are arranged in oblique or inclined slots *f*, formed in the brackets C. The arms *d* extend rearwardly beyond the pivots *e* and engage under stops or projections *g*, arranged in rear of the pivots *e*, whereby the shelf is supported in an elevated or unfolded position, as clearly represented in Fig. 3. The stops or projections *g* are formed on extensions *h*, formed on the rear side of the brackets C. The inclined slots *f* are so arranged that their lower ends are in line with the stops *g*, or nearly so, so that the supporting-arms *d* will be in a horizontal position when their pivots rest in the bottom of said slots. The latter are made of such length and inclination that when the pivots *e* rest against the upper ends of the slots the rear ends of the arms *d* will clear the stops *g*, as shown by dotted lines in Fig. 8, and permit the shelf to be folded against the standard A² to the position shown by full lines in the same figure. Upon raising the shelf until the same assumes a horizontal position the rear ends of the arms *d* strike the upper ends of the stops *g*, and in riding over the same cause the pivots *e* to move upward in the inclined slots *f*. When the pivots reach the upper ends of the slots, the rear ends of the arms *d* will have passed downwardly beyond the stops *g* and cleared the same, and upon releasing the shelf the weight thereof causes the pivots to move downwardly and inwardly in the inclined slots, thereby moving the arms *d* rearwardly and causing their inner ends to engage under the stops *g*. In this manner the shelf is unfolded and automatically locked in position by simply raising the shelf and then releasing it, the weight of the shelf and the object resting thereon retaining the pivots of the supporting-arms at the lower ends of the inclined slots. When it is desired to lower or fold the shelf, the same is slightly raised, whereby the pivots *e* and the supporting-arms *d* are

drawn outwardly by the sides of the inclined slots, thereby withdrawing the rear ends of the supporting-arms from under the stops *g* and permitting the shelf to swing against the standard. The inner ends of the supporting-arms *d* and the adjacent sides of the stops *g* are preferably curved to facilitate the movement of the arms over the stops in raising the shelf.

10 In the modified construction shown in Fig. 9 the slots are formed in the supporting-arms and are arranged horizontally and the studs or pivots are formed on the brackets C. The supporting-arms are provided at their rear ends with hooks or lips *i*, which engage behind the stops *g* and prevent the arms from being accidentally disengaged from the stops. This horizontal arrangement of the slots is not so desirable, however, because, in order to lock the shelf in its elevated position, it must be moved rearwardly after it has been raised, and the shelf is therefore not self-locking, like the first-described construction. It is obvious that in this modified construction the slots may be formed in the brackets C and the studs or pivots on the shelf-supporting arms, as shown in Figs. 1 to 8.

I claim as my invention—

1. In a step-ladder, the combination, with the hinged standard *A*² and the folding shelf B, of brackets or supports C, secured to the standard and provided with stops *g* and shelf-supporting arms *d*, pivoted to said brackets and engaging with their rear ends under the stops *g* of the brackets, whereby the shelf is supported in an elevated position, substantially as set forth.

2. The combination, with the standard and a folding shelf, of brackets or supports C, secured to the standard and provided with oblique or inclined slots *f*, shelf-supporting arms *d*, provided with pivots or studs *e*, arranged in said slots, and stops *g*, arranged on said brackets in rear of the pivots *e*, and with which the rear ends of the supporting arms *d* engage, substantially as set forth.

Witness my hand this 5th day of October, 1887.

ORANGE M. SWEET.

Witnesses:

WALTER D. HOLT,
WALTER H. C. ENSIGN.