L. P. SUMMERS.

Machines for Dressing the Joints of Hinges.

No. 151,632. Patented June 2, 1874.

Fig. 2.

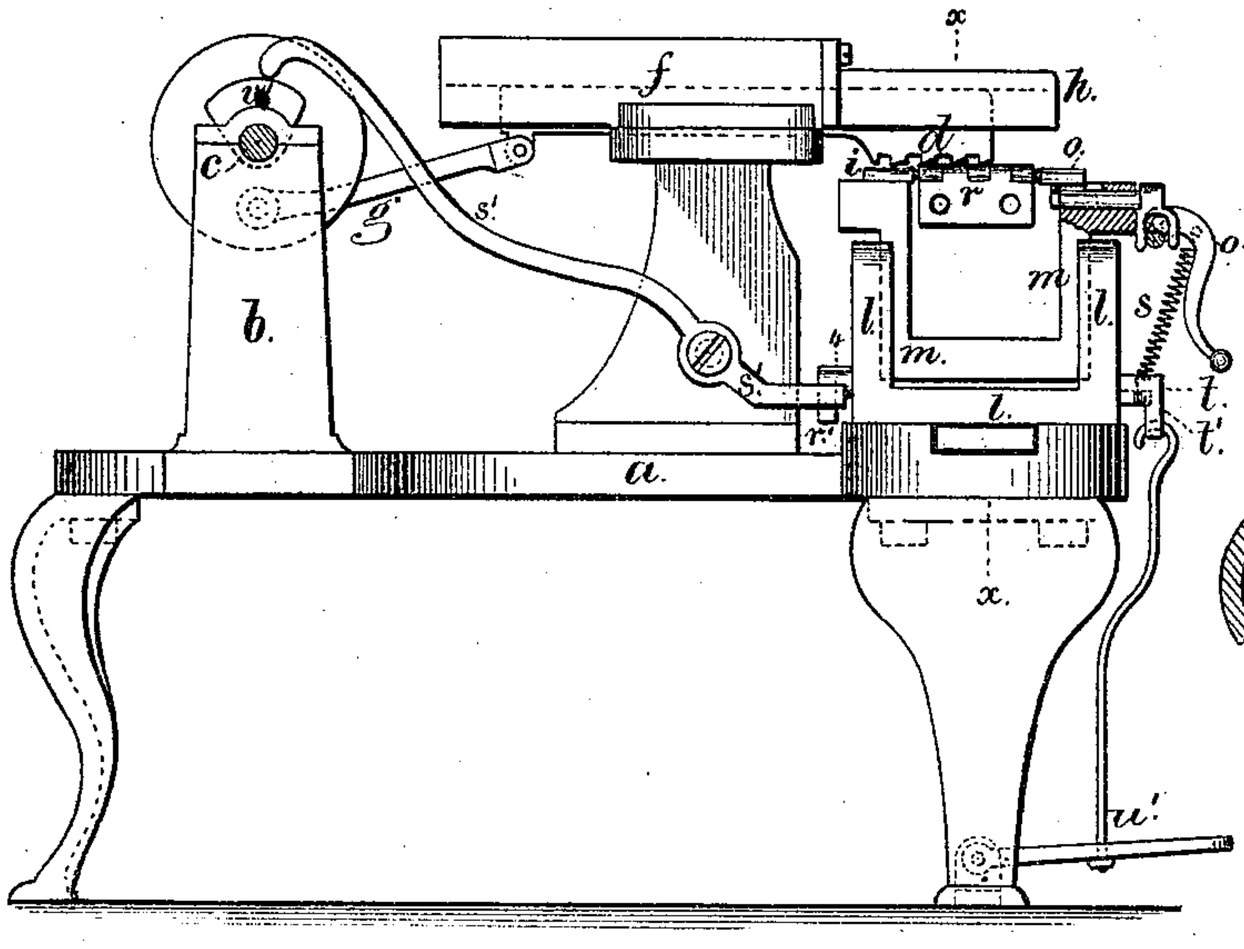


Fig. 3.

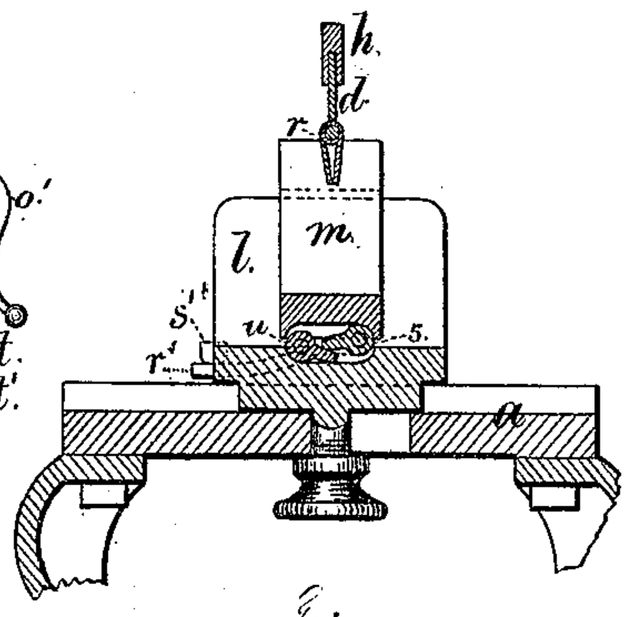


Fig. 4.

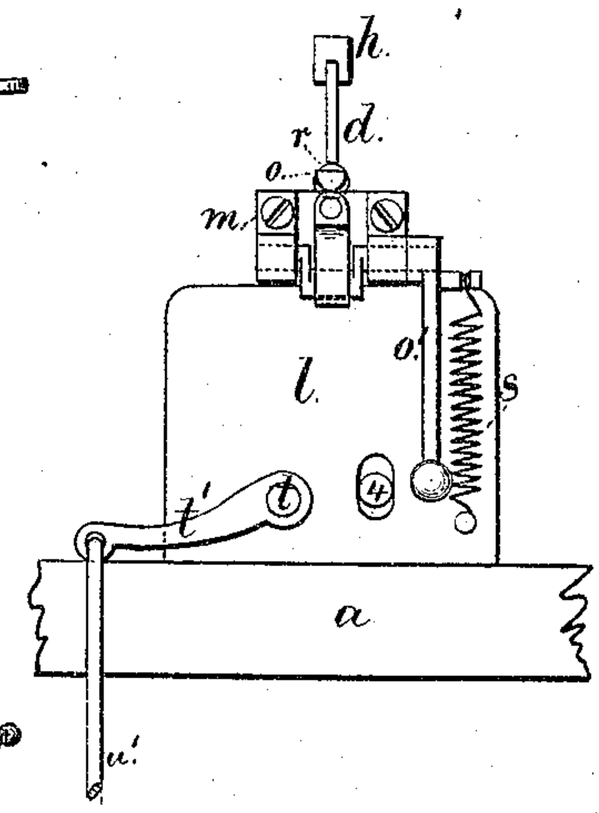


Fig. 1.

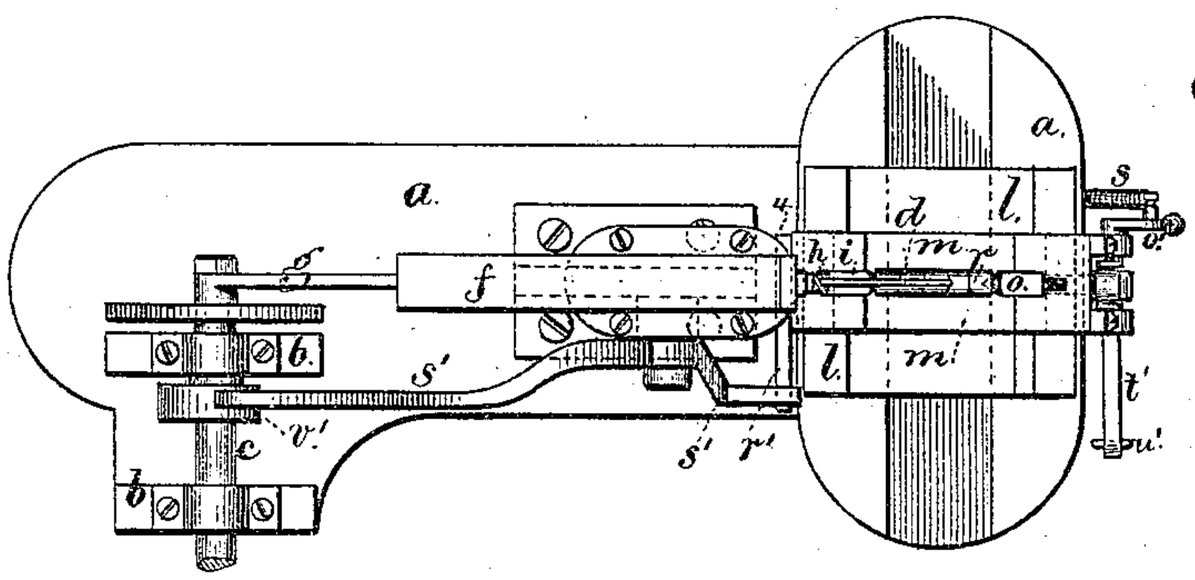
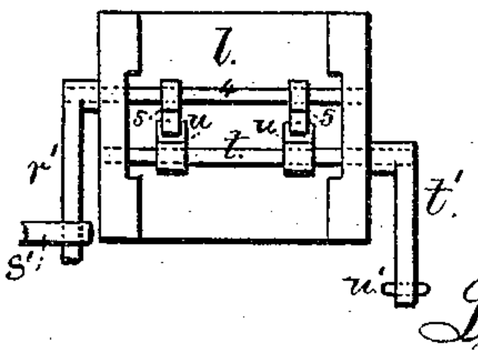


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE

LUCIUS P. SUMMERS, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO P. AND F. CORBIN, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR DRESSING THE JOINTS OF HINGES.

Specification forming part of Letters Patent No. **151,632**, dated June 2, 1874; application filed May 7, 1874.

To all whom it may concern:

Be it known that I, LUCIUS P. SUMMERS, of New Britain, in the county of Hartford and State of Connecticut, have invented an Improvement in Machinery for Finishing the Joints of Hinges, of which the following is a specification:

The ordinary method of finishing up metal butt-hinges is to dress off the contiguous faces of the joint, set the leaves together, bore the hole for the pin, and then file or grind off the metal around the joint. The hinge, while being filed, is held in a vise, and the surface of the joint is dressed off in detail. This necessitates frequent opening and closing of the hinge. Great difficulty arises in making the rounded or cylindrical portions of the joints of uniform diameter and concentric with the hinge-pin, otherwise the surfaces will not correspond with each other when the hinge-leaves are either open or closed; and, furthermore, the hinges finished by hand are liable to be flattened at some portions of the surface, especially if the hinge is not turned in the vise during the process of filing.

My improvements are made for finishing up the joint between the leaves of the hinge with great rapidity and perfection, and at a great saving of labor.

The hinge is grasped between two centers that enter the female centers of the joint. One of these centers is movable, and pressed up by a spring and lever. These centers are in a stock that slides vertically in a moving frame or carriage. The hinge, stock, and carriage are brought along by the operator beneath a reciprocating planing or filing tool, and the surface dressed, and the hinge opened and turned until all portions of the joint are finished off true with each other, and equidistant from the axis or joint-pin. The hinge is pressed up toward the filing or finishing tool, and the pressure is relieved, so that the hinge is not pressed to the tool as the latter is moving back, thereby lessening friction and wear on the tool.

In the drawing, Figure 1 is a general plan of the machine. Fig. 2 is a side view. Fig. 3 is a cross-section at the line *x x*. Fig. 4 is an elevation at the operative end of the hinge-holder; and Fig. 5 is a plan of the mechanism for dropping the hinge-holder and hinge on the return movement of the tool.

The machine is made with a suitable bed, *a*, and pillar-blocks *b*, supporting the shaft *c*, that is driven by a crank or by a pulley and competent power. The filing or finishing tool *d* is made like a saw, with the cutting-edges of the teeth so beveled that they cut when moving away from the operator, by preference, and hence as the tool moves toward the operator, on the return stroke, the hinge should be dropped out of the way, as hereafter described. This tool slides in a head-block, *f*, and is reciprocated by a crank and pitman, *g*, and *h* is an arm extending from the head-block, serving as a support and a guide for the back of the tool. The hinge-holding carriage *l* slides transversely of the machine in slides in the bed *a*, and it carries, in vertical guideways, the stock *m*, that is provided with center-pins *i* and *o* for the hinge *r*. The pin *i* is stationary, but the pin *o* is movable endwise by the lever *o′* and eccentric or crank on the shaft of the lever acting in a jaw at the end of the pin *o*, and this lever *o′* is acted upon by a spring, *s*, so that the point *o* is pressed toward *i*, and holds the hinge firmly; but the hinge can be easily taken out or reversed by moving the lever *o′* and withdrawing the center *o*. It is to be understood that the centers *i* and *o* enter the female centers in the ends of the joint, and that the leaves of the hinge are held together by the joint-pin, the center holes left at each end allowing for the insertion of ornaments. The shaft *t* that passes across the carriage *l* is provided with cams *u u*, beneath the stock *m*, and an arm, *t′*, and a treadle or lever, *u′*, serves to raise the stock *m*, and press the hinge toward the reciprocating cutter, and the operator may lessen the pressure of the foot on the treadle to allow the hinge to drop on the return movement of the cutter; but I prefer to employ the lifter-shaft 4, with cams 5 resting upon the cams *u*, and this shaft 4 and cams 5 will be lifted bodily by the treadle *u′*, lever-arm *t′*, shaft *t*, and cams *u*, when the hinge-stock *m* and hinge are raised, the shaft

4 being in slotted guides in the carriage *l*, so as to allow of this movement, and at the end of the shaft 4 is an arm, *r'*, that is acted upon by a lever, *s'*, and segmental cam *v'*, so as to rock the shaft 4 and press the hinge toward the cutter *d* while said cutter is operating, and release the pressure upon the return motion of the cutter or file.

By these means the operation becomes automatic, and the attendant can hold the leaves of the hinge in his hands, and turn them back and forth upon the centers, and also open and close the flaps, which is necessary to dress off the cylindrical portion of the joint smooth and true, and close up to the leaves or flaps.

I claim as my invention—

1. The reciprocating filing or cutting tool, in combination with centers for centering the holes at the ends of the joint of the hinge, and sustaining such hinge while turned and operated upon by the cutter, substantially as set forth.

2. The center *o*, cammed lever *o'*, and spring *s*, in combination with the fixed center *i* and the reciprocating cutting-tool for dressing off the cylindrical joint of the hinge, substantially as set forth.

3. The hinge-holding stock *m* and centers *i* and *o*, sliding vertically in the carriage *l*, in combination with the tool *d*, and with mechanism for raising the stock and hinge toward the tool, substantially as set forth.

4. The lever *s'*, arm *r'*, and shaft 4, in combination with the hinge-holding stock and reciprocating tool, substantially as set forth, for automatically relieving the hinge from the cutter on the return movement of the latter, substantially as set forth.

In witness whereof I have hereunto set my signature this 1st day of May, A. D. 1874.

L. P. SUMMERS.

Witnesses:

CHARLES PECK,

E. L. PRIOR.