(No Model.)

# C. R. SMITH & J. B. ADAMS.

## CLAMP.

No. 319,521. Patented June 9, 1885.

Fig. 1.

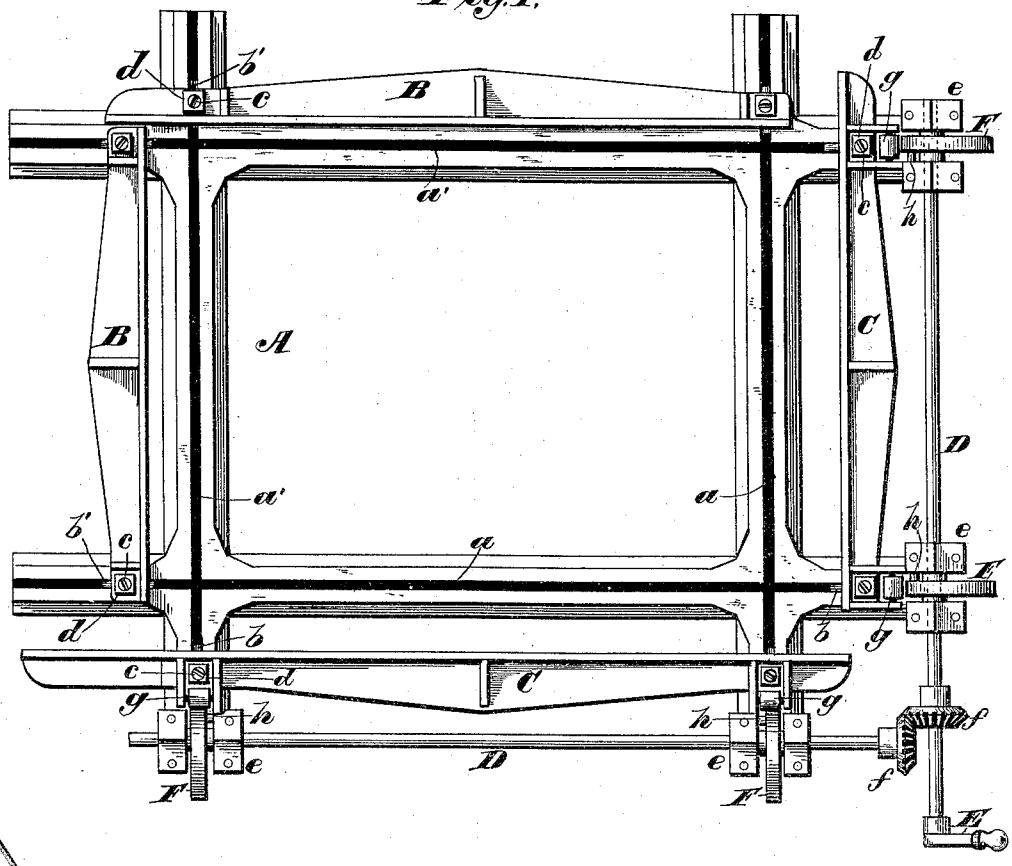



Fig. 2.

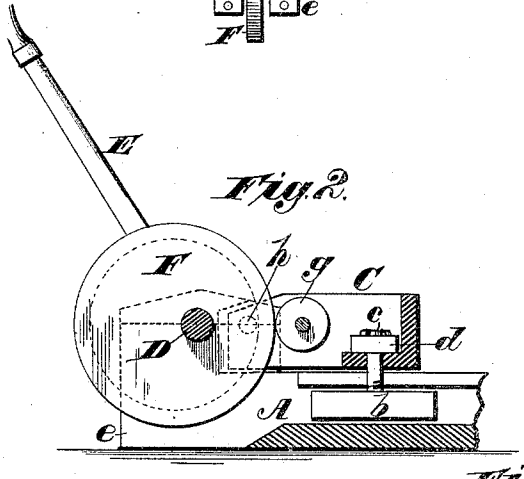



Fig. 3.

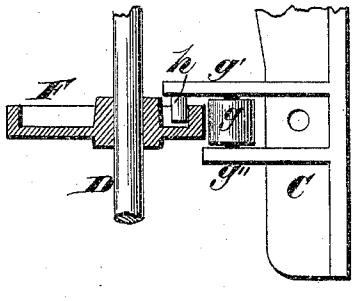
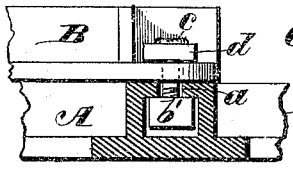



Fig. 4.




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# UNITED STATES PATENT OFFICE.

CHARLES R. SMITH AND JOHN B. ADAMS, OF CHEBOYGAN, MICHIGAN.

## CLAMP.

SPECIFICATION forming part of Letters Patent No. 319,521, dated June 9, 1885.

Application filed February 9, 1885. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES R. SMITH and JOHN B. ADAMS, citizens of the United States, residing at Cheboygan, in the county of Cheboygan and State of Michigan, have invented certain new and useful Improvements in Sash, Door, and Blind Clamps, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain new and useful improvements in sash, door, and blind clamps, and has for its object to provide a clamp for clamping a sash, door, or blind upon both sides and ends by one single operation.

To this end our invention consists in the novel construction and arrangement of parts hereinafter fully described, and specifically pointed out in the claims, due reference being had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a plan view. Figs. 2, 3, and 4 are detail views.

Referring to the drawings, the letter A indicates the frame of the machine. This frame may be mounted upon legs or a bench, or be supported in any suitable manner.

B B indicate two stationary head-blocks, and C C two movable head-blocks. The head-blocks B B are preferably made of L-shaped iron and made adjustable, as follows: The frame A is provided with grooved ways *a a'* at right angles to each other, in which are secured the head-blocks by means of rectangular pieces *b b'*, which travel in the grooved ways, and are secured to the head-blocks by means of threaded bolts *c c*, which pass through the head-blocks and screw into the pieces *b b*. Washers *d d* are preferably placed between the heads of the bolts and the head-blocks, as shown. By loosening the bolts *c c* the head-blocks B B can be moved toward or away from the center of the frame, to adjust the machine to doors, sashes, or blinds of different sizes, and after the proper adjustment has been made the bolts are tightened up, rigidly holding said head-blocks in position.

The head-blocks C C are secured in the grooved ways in the same manner as the head-blocks B B, the bolts being unscrewed sufficiently to permit of an easy movement of the head-blocks in the ways.

D D indicate two shafts placed at right angles to each other, and mounted in suitable bearings, *e e*, bolted or otherwise secured to the frame, as shown. Said shafts are geared together by beveled gear-wheels *f f*, and one of said shafts is provided with a crank or handle, E.

F F indicate cams or eccentrics mounted upon and keyed to said shafts, said cams being provided with annular flanges upon their peripheries.

*g g* indicate friction-rollers journaled in arms *g' g''*, secured to the head-blocks C C; or said arms may be cast integral with said head-blocks.

*h h* indicate pins or studs projecting from the arms *g'*, and engaging the cams upon the inner circumference of the annular flanges.

It will be seen that the peripheries of the cams F F have a direct bearing upon the friction-rollers *g g*, and by turning the cams in the proper direction the head-blocks C C will be forced toward the center of the frame, and a reverse movement will cause them to recede, the flanges on the periphery of the cams engaging the pins or studs *h h*.

By mounting the cams on the shafts D D, and gearing said shafts together, as shown, both head-blocks C C will be operated simultaneously by a single movement of the crank or handle E.

The operation of the machine is as follows: The head-blocks B B having been first adjusted to fit the size of work intended to be clamped, the handle E is turned in the proper direction to expand the head-blocks C C, and the sash, door, or blind, as the case may be, is then laid upon the frame and between the head-blocks. The handle is now turned in the proper direction to contract the head-blocks C C, thus forcing in said head-blocks, and by a single movement of the handle clamping both the sides and ends of the sash, door, or blind simultaneously.

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

1. In a sash, door, and blind clamp, the combination of a series of stationary and movable head-blocks, forming the sides of an inclosure, with shafts geared together and mount-

ed substantially parallel with the head-blocks, and provided with connections to simultaneously actuate said movable head-blocks, as and for the purposes set forth.

2. In a sash, door, and blind clamp, in combination with a pair of head-blocks at right angles to each other and forming two sides of a rectangular inclosure, and a pair of movable head-blocks completing the inclosure, a pair of shafts geared together, and mounted parallel with said movable blocks, and provided with cams to actuate the same, substantially as described.

3. In combination with a moving head-block of a clamping device, provided with arms projecting therefrom, and having a roller journaled therein, and a projection extending at right angles to said arms, a shaft having a cam keyed thereto, the latter being provided with a flanged periphery the outer face of which engages said roller and the inner face engaging said projection, substantially as shown, and for the purposes described.

4. The herein-described clamping device, consisting of a bed or frame having longitudinal and transverse under-cut grooves, head-blocks secured to said bed in diagonal pairs by bolts working within said grooves, one pair being movable and provided with pairs of rearwardly-extending arms, each pair of which has a roller journaled therein and a lateral projection extending therefrom, a pair of shafts geared together at right angles, and cams keyed to said shafts, and provided with flanged peripheries the outer faces of which engage the rollers of the movable head-blocks and the inner faces their projections, for the purposes described.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES R. SMITH.
JOHN B. ADAMS.

Witnesses:
EDWIN Z. PERKINS,
GEO. P. HUMPHREY.