# L. T. Smart,

## Crimping Blind Slats,

No. 17,341, Patented May 19, 1857.

Fig: 1.

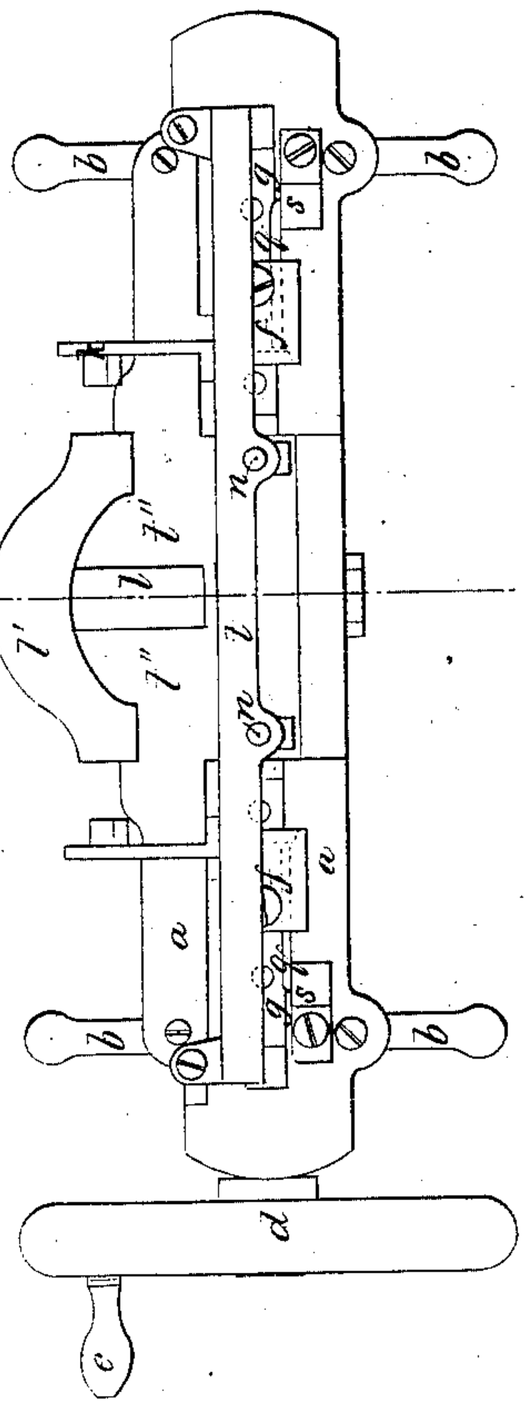


Fig: 2.

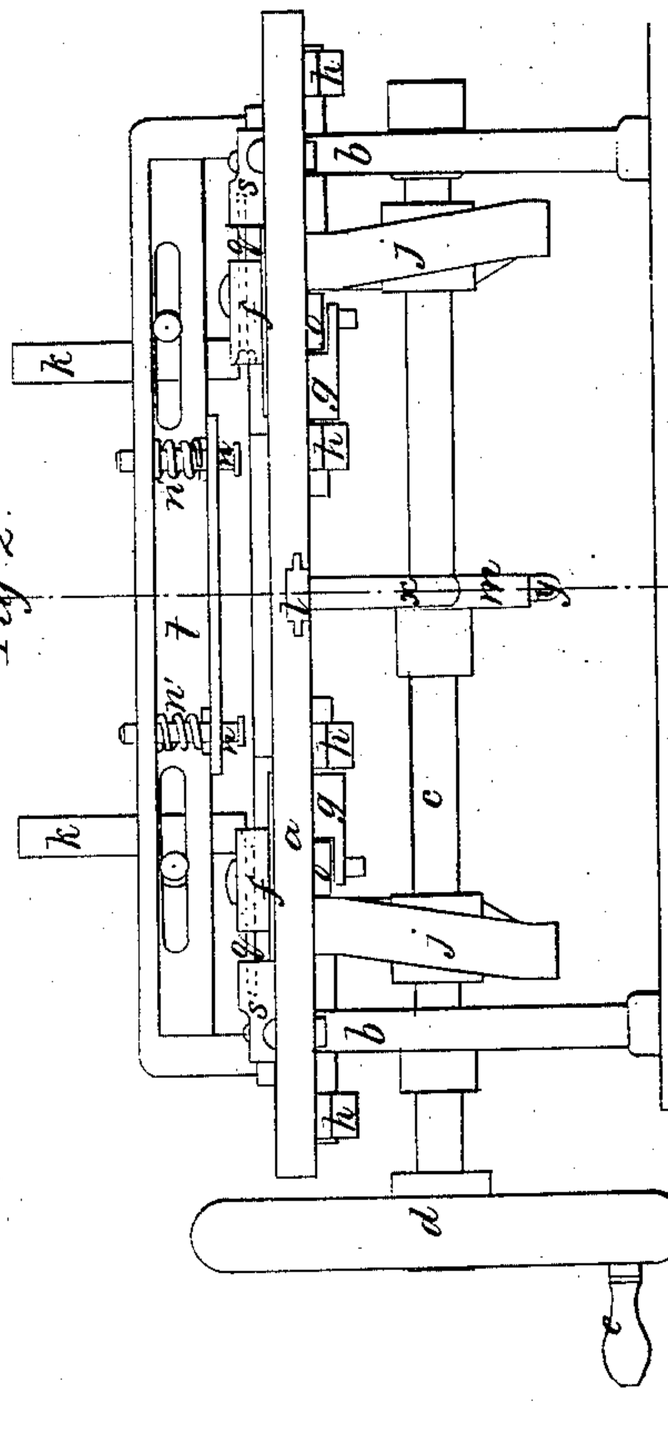


Fig: 3.

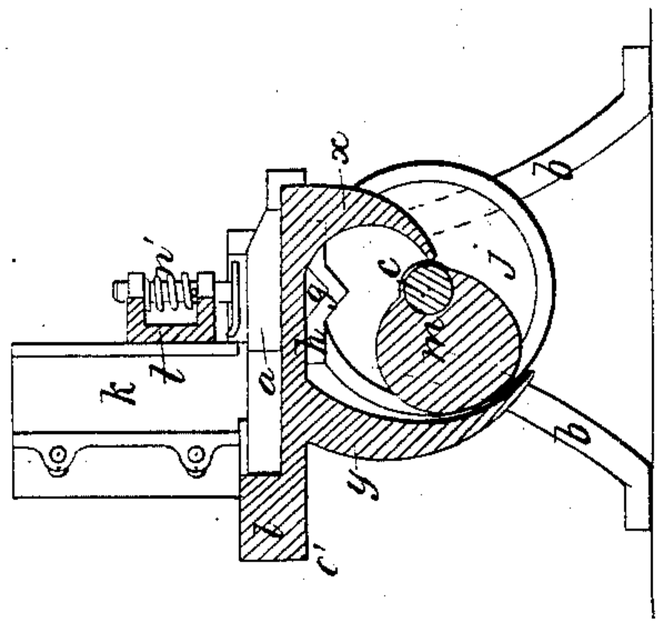
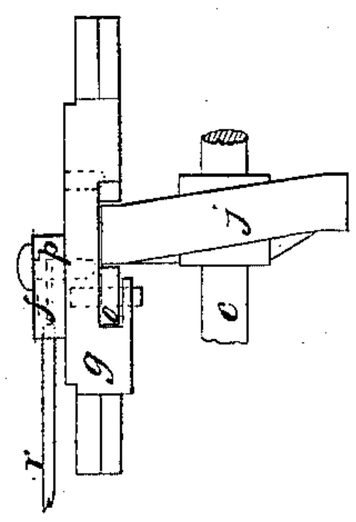


Fig: 4.



# UNITED STATES PATENT OFFICE.

LUTHER T. SMART, OF MANCHESTER, NEW HAMPSHIRE.

## MACHINE FOR CRIMPING THE ENDS OF BLIND-SLATS.

Specification of Letters Patent No. 17,341, dated May 19, 1857.

*To all whom it may concern:*

Be it known that I, LUTHER T. SMART, of Manchester, in the county of Hillsboro and State of New Hampshire, have invented a new and useful machine for crimping or pinching the ends of shades manufactured of wood for window and other blinds, so that the same may be inserted into the stile of the blind securely and permanently; and I do hereby declare that the following is a full and exact description of my machine for preparing the shades for their stiles, reference being had to the accompanying drawings, whereon like letters refer to like parts in the several views or figures.

To understand the nature and importance of this invention it is necessary to state its object or purpose and the methods now in use to effect its object.

Shades or slats used in the construction of window or other blinds are first by various machines finished to a uniform length, width, and thickness, for insertion into the stile or upright post of the blind before they are inserted, as they can not be worked down afterward. After being so finished the ends of each shade must be paired or shaved off into a wedge shape with a knife, or these ends must be compressed into the wedge form for insertion into the mortise of the stile which is a very little smaller the same way. These and other methods bringing the ends of the shade to this wedge shape now in use are by shaving off the corners of the ends with a knife or pressing the end of one shade into a die or crevice by means of a lever, and then turning the shade end for end and pressing the other end in the same way. These and other methods now in use are very objectionable as they do not insure any uniformity in the shape of the wedge at the end of the shade and consequently one end of the shade fits its stile much more perfectly than the other. The importance of uniformity and exactness of finish of the ends of shades will be seen when it is recollected that the shades are not nailed or pinned into their stiles, but held there simply by being driven into the mortises of like size, and the better they fit the closer they stick.

To secure this better fit by bringing each and every shade, at its end, to the same dimension and taper, or bevel is the object of this invention.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The machine is constructed wholly of iron or other metal for the manufacturing of wooden shades.

Figure 1— is a plan—top view; Fig. 2— rear elevation; Fig. 3— sectional elevation on the red line A, B, Figs. 1 and 2; Fig. 4— stretch showing the die-block *f*, and the manner of cam *j* operating it.

Like parts of the machine are represented by like letters in the above named figures.

*a a* the frame or bed piece of the machine supported by legs *b b; c* the main shaft of the machine to which power is applied by crank *e* or belting on to pulley of size or in place of balance wheel *d*, on which shaft are cams *j j* and *m*.

*f f* are die blocks attached by set screws to *g g*, with a slot in the blocks to adjust them to the length of the shade or at any desired distance from each other. These dies *f f* are constructed with a mortise into the inner end or the end next to the shade, which mortise is larger at its mouth than at the bottom of the mortise, thus making the sides of the mortise, flaring or shelving so that the shade being forced into the die is pinched or cramped into a wedge shape at each end. Through *f*, *f*, are holes longitudinal for the insertion and passage of the wire or rod *p*, larger than the rod; *f*, *f*, are set by screws to the slides *g g* which run on guides *h*, *h;* and *h*, *h*, are attached by screws to *a*, underneath; *g*, *g*, sliders to which *f f* are attached by screws. *h h* guides for the sliders *g g*, affixed to the frame or bed piece and by means of screws. *j j* are irregular cams on the shaft *c*, which by their revolution by their inner and outer sides drive *g g* toward or from each other; *m* a cam, irregular, for moving (by striking *y* and *z* of *l*,) *l* back and forth or across *a* as shown in Fig. 1, running in grooves in bed piece *a*, as shown at *l* in Fig. 2; *k*, *k*, hopper or rack for holding the pile of shades to be operated on attached to *t* by adjustable screws; *l* slide operated by cam *m* for moving the lower shade of the pile forward into a position to be operated on by the die blocks *f*, *f*, slotted with adjustable screw at *o'* Fig. 3; *n n* studs pressing firmly on the shade and holding it in place while under operation, the front of which is turned up to receive the shade. *n n* move through projections of *t* and maintain their pressure by

means of spiral springs $n'$ $n'$; $t$ a bar set on to $a$, by screws, open or cut out on its under side to let the dies pass under it and also the slide $l$, and is slotted for adjusting the sides of the rack $k$, $k$, to a distance corresponding to the length of the shade to be operated on; and it has a projection in its side for the studs $n$ $n$; $k'$ a slide for adjusting the rack to any width of shade Fig. 3; $o$, $o$ friction wheels on the sliders $g$ $g$ against which cams $j$ $j$ play as the dies are moving toward each other. $p$ $p$ rods or pins set firmly into blocks $s$ $s$, which blocks are slotted and fixed by means of screws to the plate $a$ for adjusting the rods $p$ $p$. These rods pass freely through the die blocks $f$ $f$ to or nearly to the outer end of the shade when it is being pinched. The rods $p$ $p$ serve to prevent the shade from sticking in either die when the die blocks are moving from each other to receive the next shade; for without these rods $p$ $p$ the shade would not only stick in the die, but if one end of the shade was softer than the other, which is often the case, the soft end would be driven farthest into its die, and the harder end would perhaps not enter the die at all, or but a little distance, not far enough to give the shade a sufficient wedge to hold in its stile. $p$ $p$ are adjusted at a distance equal or a little greater than the length of the shade so that the shade shall just pass by the inner ends of $p$ $p$; and further $p$, $p$, serve as additional guides to the die blocks $f$ $f$.

$r$ represents the end of a shade under operation of the die, Fig. 4.

I contemplate the using of dies of different sizes and of different mortises or openings for pressing or pinching the end of the shade as desired—in inside and outside blinds—or any sort of blinds, arranged and adjusted in a manner equivalent to those described above. In sliders $g$ $g$ are several screw holes for the screws of die block $f$, to adapt dies to different length of shades. The cams $j$ $j$ are fixed to the shaft $e$ by means of screws movable to any desired place for operating the sliders $g$ $g$.

$l'$ is an adjustable slide sliding on the slide $l$, adjustable to the width of the shade, and fixed to $l$ by a screw in a slot.

Having described the construction of my machine substantially, I proceed to give its operation. When the cam $m$ is in position represented in Fig. 3, with $l'$, Fig. 1, as represented, the operator fills the rack $k$ $k$ with shades piled one upon the other to the top or with as many as he desires to prepare for insertion on the stile, the lower shade resting on the elevated part of the bed piece $a$ at $t''$ $t''$, the rack being adjusted to the length and width of the shade, and the slide of $l'$ being always less in thickness, than the shade it moves, so that only one shade may be sent forward at a time. The shades being in the rack, he then by the crank $e$ turns the shaft $c$, by whose revolution cam $m$, Fig. 3, strikes the arm of $l$ near $x$ and carries $l$ with its slide $l'$ forward and across the bed piece $a$ over space $t''$ $t''$, Fig. 1, pushing or shoving before it the lower shade of the pile forward and under the stud $n$ $n$ and opposite the dies in the blocks $f$ $f$ when shade 2, Fig. 4, is firmly held by $n$ $n$, while the revolution of $c$ continuing, the cams by their inner sides playing against the friction rolls $o$ $o$ in the sliders $g$ $g$, Fig. 1, force the dies $f$ $f$ toward each other and over the ends of $r$ as far as desired. While the dies $f$, $f$ are approaching each other $m$ strikes arm of $l$ near $y$, Fig. 3, and carries $l'$ back to its first position, when the next shade falls to $a$ at $t'$ $t''$ to be carried forward by another revolution of $c$. Before the operation above described is performed the rods $p$ are adjusted and set by their screws at a distance just sufficient to let the shade $r$ by them as $r$ comes directly between the dies $f$ $f$, and when $f$ $f$ are pinching or cramping shade $r$, $p$ $p$ prevent one end of the shade being driven farther into its die than the other in case, which is often so, that one end of the shade is softer than its opposite, and further, as $c$ continues its revolution the outer surfaces of the cams $j$ $j$ by striking against slides $g$ $g$, (where I contemplate placing friction rolls) force $g$ $g$ and with them $f$ $f$ apart and from each other back to a sufficient distance to admit the next shade, and while $f$ $f$ are so receding $p$ $p$ hold shade $r$ from following either die, or sticking in either die $f$, $f$ as it $r$ would be likely to do by being into $f$ as shown in Fig. 4, thereby being in the way of the next coming shade or stopping the operation of the machine, whereas by this arrangement of $p$ $p$ Fig. 2, as shown by the dotted lines, $r$ is left free of the dies $f$ $f$ as they pass off ends of $r$, and $r$ is only confined by studs $n$, $n$, to be pushed off the machine by the next revolution of $c$, that carries the shade already on $t'$ $t''$ forward to be operated on as the first shade has been described. For the dies $f$ $f$ go apart as $l'$ brings forward shade $r$ to be operated on. Thus having adjusted $k$ $k$ to the width and length of $r$, also $p$ $p$ to length of $r$, and $l'$ to width of $r$ and inserted dies or die blocks $f$ $f$ of such mortise as will bring the wedge shape of end of $r$ to the desired form and having adjusted $f$ $f$ on the slides $g$ $g$, and having filled the rack $k$ $k$ with shades and set $c$, the shaft revolving by hand or pulley, no further attention of the operator is required, but the machine alone prepares each end of every shade with the most perfect and uniform wedge shape for insertion in the mortise of the stile, and throws the shade after being so prepared off the machine and out of the way, and nothing requires the subsequent

care or attention of the operator except to refill or replenish the rack with shades, and if this is not done the machine will continue to run on without injury to itself except its wear.

A further advantage of the foregoing arrangement is that the shaft *c*, sustains by the cams *j j* the pressure of the die blocks *f f*. Thus by using a sufficient shaft *c*, the remaining parts of the machine are constructed very light, compared to what would be necessary if the sides or other parts of the machine sustained this crimping pressure, and a further advantage is that this machine will the day long turn out shades at the rate of one hundred per minute, and now there is no contrivance, however imperfect for crimping that will crimp over one sixth as many per minute.

What I claim and desire to secure by Letters Patent is—

The machine herein described, substantially as herein set forth or its equivalents for crimping shades to blinds consisting essentially of the sliding dies *f*, *f*, in combination with the cams *j j* and *m*, the rolls *p p*, the slide *l'* and the pressure studs *n n* with the rack *k k* connected together and operating in the manner substantially as herein set forth.

LUTHER T. SMART.

Witnesses:
JOHN HOUSTON,
B. P. CILLEY.