N. H. BEEBE & H. E. SMITH.

LIP CLENCHER FOR BROOM MAKING MACHINES.

APPLICATION FILED APR. 4, 1912.

1,033,374.

Patented July 23, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

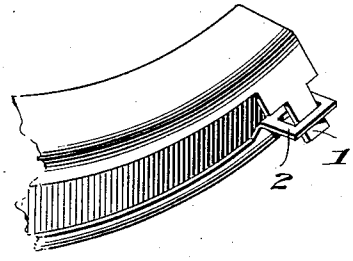


Fig. 2.

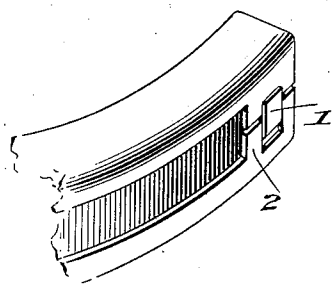
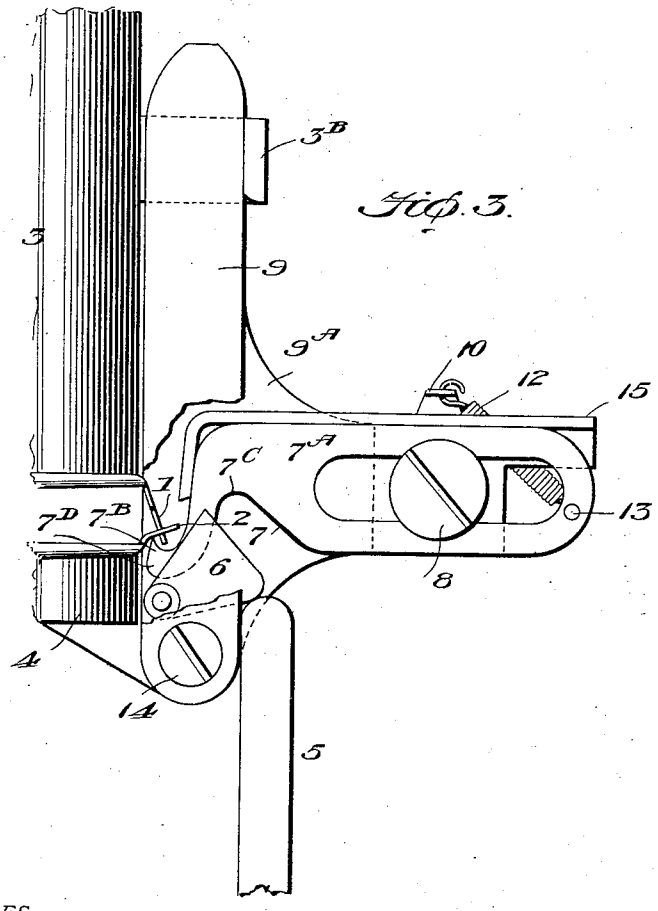


Fig. 3.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

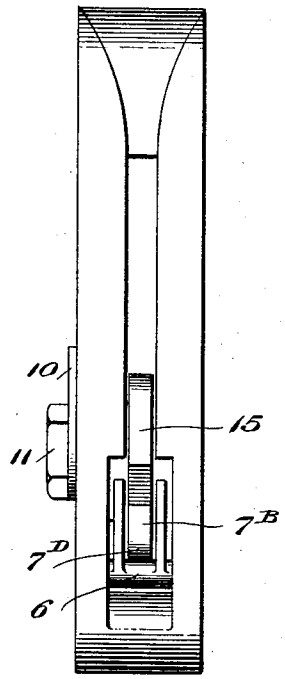


Fig. 7.

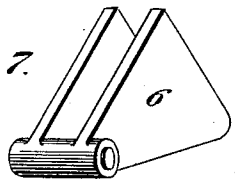


Fig. 8.

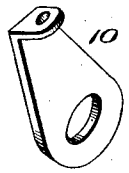


Fig. 9.

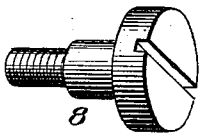


Fig. 5.

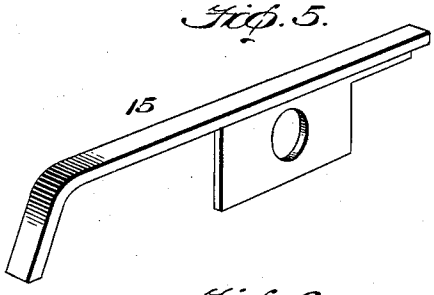
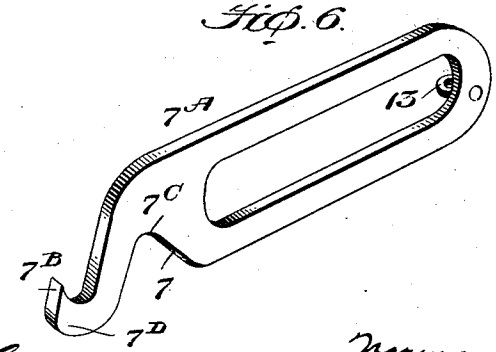


Fig. 6.



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UNITED STATES PATENT OFFICE.

NORMAN H. BEEBE AND HARRY E. SMITH, OF WICHITA, KANSAS, ASSIGNORS TO LEE BROOM & DUSTER COMPANY, OF DAVENPORT, IOWA, A CORPORATION OF IOWA.

LIP-CLENCHER FOR BROOM-MAKING MACHINES.

1,033,374. Specification of Letters Patent. Patented July 23, 1912.

Application filed April 4, 1912. Serial No. 688,505.

To all whom it may concern:

Be it known that we, NORMAN H. BEEBE and HARRY E. SMITH, citizens of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Lip-Clenchers for Broom-Making Machines, of which the following is a specification.

Our invention relates to an improvement in lip clenchers for broom-making machines.

This device is used to clench, or lock together the style or kind of metal broom clamps which are provided with a tongue on one clamp and a slotted lip on the mating clamp.

In the accompanying drawings:—Figure 1 shows in perspective the side portion of a pair of clamps before the clenching operation, Fig. 2 shows the same after the clenching operation, Fig. 3 is an elevation of the complete clenching device together with related parts of the broom-making machine to which it is attached, Fig. 4 is a front elevation of the device, Fig. 5 shows in perspective the lip guide, Fig. 6 is a view in perspective of the clencher, Fig. 7 illustrates the slotted lip straightener, Fig. 8 shows the spring-holder, and Fig. 9 illustrates the special screw around which the lip guide and clencher operate.

By referring to Fig. 1, it will be seen that the upper clamp is provided with a tongue 1, which tongue passes through a slot in lip 2 on the lower clamp. It will also be noted that lip 2 is bent to stand at an angle to the body of the clamp that tongue 1 may easily pass through the slot. As before stated, Fig. 2 shows the position of the lip and tongue after the clenching operation. These clamps are first placed in the broom-making machine. The upper clamp is temporarily held by the sliding head of the broom-machine, a few inches above the lower clamp which rests on a bracket 4. This bracket is a part of the broom-making machine. The sliding-head 3 now descends bringing the clamps to the position shown in Fig. 3. As the upper clamp descends, the tongue 1 is passed through the slot in lip 2. At this stage the head 3 remains stationary and a lower sliding-head to which plunger 5 is attached moves upward. Connected to the bracket 4 is the vertically-slotted main frame 9 of the clenching device by screw-bolt 14. The main frame 9 is swung to the position shown in Fig. 3 for the clenching operation by the plunger 5, and the main frame extends in a vertical position and is engaged by a loop 3^B carried by the head 3 for holding the frame in a vertical position during the clenching operation. The frame 9 is provided with a horizontally-extending portion 9^A which is designed to receive the threaded portion of screw-bolt 8. The threaded portion of the screw is long enough to project through the frame and receive the spring-holder 10 and the nut 11. The clencher 7^A is provided with an elongated slot through which the bolt 8 passes for connecting the clencher to the horizontal arm 9^A. A coil-spring 12 is attached to the spring-holder 10 at its upper end, and by means of an eye-bolt 13 to the clencher at its lower end. The function of this spring is to cause the clencher to resume the position shown in Fig. 3 after the clamping operation has been completed. A lip-guide 15 is mounted upon the clencher and is held in position by the bolt 8 and the arm 9^A, and is adapted to engage the lip 2 and bend it toward the body of the clamp as the upper clamp descends to insure the tongue 1 entering the slot of the lip. The lip-straightener 6 is journaled to the bracket 4 and is preferably constructed somewhat U-shaped so that the edges of the straightener will engage the lip 2, forcing it to a vertical position. The plunger 5 engages the lip-straightener 6, causing it to rotate on its own axis. The advancing edge of the wings of the lip-straightener 6 engage the slotted lip forcing it to a vertical position. The plunger 5 continuing to rise, engages the inclined surface 7 of the clencher 7^A; thus a horizontal motion is imparted to the clencher. This horizontal movement causes the hook 7^B of clencher 7^A which lies between the sides of the lip-straightener 6 to bend the tongue 1 so that the end portion of the tongue stands in a horizontal position. The plunger 5 is now pushing against the curved portion 7^C of clencher 7^A. The horizontal movement of the clencher has ceased and a vertical movement of the hook end 7^B begins, the clencher rotating around the screw 8. As the hook end of the clencher continues to rise, the rounded portion 7^D bends the lip end upward, pressing same tightly against the upper portion of the lip as shown in Fig. 2.

The lip guide 15 swings in unison with the clencher about the screw 8. The function of this device is to bend the lip 2 toward the body of the clamp as the upper clamp descends to insure it entering the slot. The lip-guide 15 engages the lip 2, causing it to be swung to a position so that the lip 1 when lowered by the head 3 will be in a position to enter the slot in the lip 2. After the clenching operation is complete, the head 3 rises and the plunger 5 descends. This removes the loop 3^B from the frame 9. The clenching device as a whole now rotates about the pivot 14 until the entire main frame lies in a horizontal plane. This is done that the operator may have room to remove the broom just made and place the clamps, corn and handle in the machine for the next broom. Assuming this to have been done, the first movement of the broom-machine is to raise the lower head and consequently the plunger 5 a given distance. The rising plunger pushes the clenching device to the position shown in Fig. 3, and the cycle of operation is repeated.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. A lip-clencher comprising a frame, a lip-straightener and a clencher pivoted thereto, and a plunger in the path of which both the lip-straightener and the clencher lie so that they are actuated in the order mentioned by said plunger engaging them.

2. A lip-clencher comprising a frame, a lip-straightener and a clencher pivoted thereto, a plunger in the path of which both the lip-straightener and the clencher lie so that they are actuated in the order mentioned by said plunger engaging them and a spring for returning the clencher and lip-straightener to their normal position.

3. A lip-clencher comprising a frame, a plunger, a lip-straightener pivoted to the frame and normally in the path of the plunger, and a spring-actuated clencher slidably and pivotally connected with the frame and normally in the path of the plunger, said clencher provided with an inclined surface, which inclined surface is adapted to be engaged by the plunger for causing the clencher to first slide endwise and then the plunger swinging it on its pivot whereby to complete the work of the clencher.

4. A lip-clencher comprising a vertically-slotted frame, a lip-straightener pivoted within the slot of the frame and comprising two sides, and a clencher slidably and pivotally connected with the frame and provided with a hook which normally rests between the sides of the lip-straightener, and a plunger in position to swing the lip-straightener on its pivot to slide the clencher and finally swing the latter on its pivot.

5. A lip-clencher comprising a frame, a lip-straightener pivoted to the frame and comprising two separated sides, and a clencher slidably pivoted to the frame and provided at one end with a hook and rounded portion which are straddled by the sides of the lip-straightener, and a plunger which successively operates and brings into play the lip-straightener, the hook, and the rounded portion of the clencher.

6. In a lip-clencher, the combination with a bracket and a sliding-head, of a frame pivoted to the bracket, said head adapted to engage the frame and hold it in position when the head advances toward the bracket, a lip-straightener pivoted to the frame, a clencher slidably pivoted to the frame, and a plunger in position to swing the lip-straightener on its pivot to slide the clencher and finally swing the latter on its pivot.

7. In a lip-clencher, the combination with a bracket and a sliding head, of a frame pivoted to the bracket, said head adapted to engage the frame and hold it in position when the head advances toward the bracket, a lip-straightener pivoted to the frame, a clencher slidably pivoted to the frame, a plunger in position to swing the lip-straightener on its pivot to slide the clencher and finally swing the latter on its pivot, and means for causing said movable parts to automatically resume their normal position.

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

NORMAN H. BEEBE.
HARRY E. SMITH.

Witnesses:
W. A. THOMAS,
J. D. EDISON.