

No. 631,140.

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Patented Aug. 15, 1899.

SAFETY DEVICE FOR COTTON BEATERS.

(Application filed July 7, 1899.)

(No Model.)

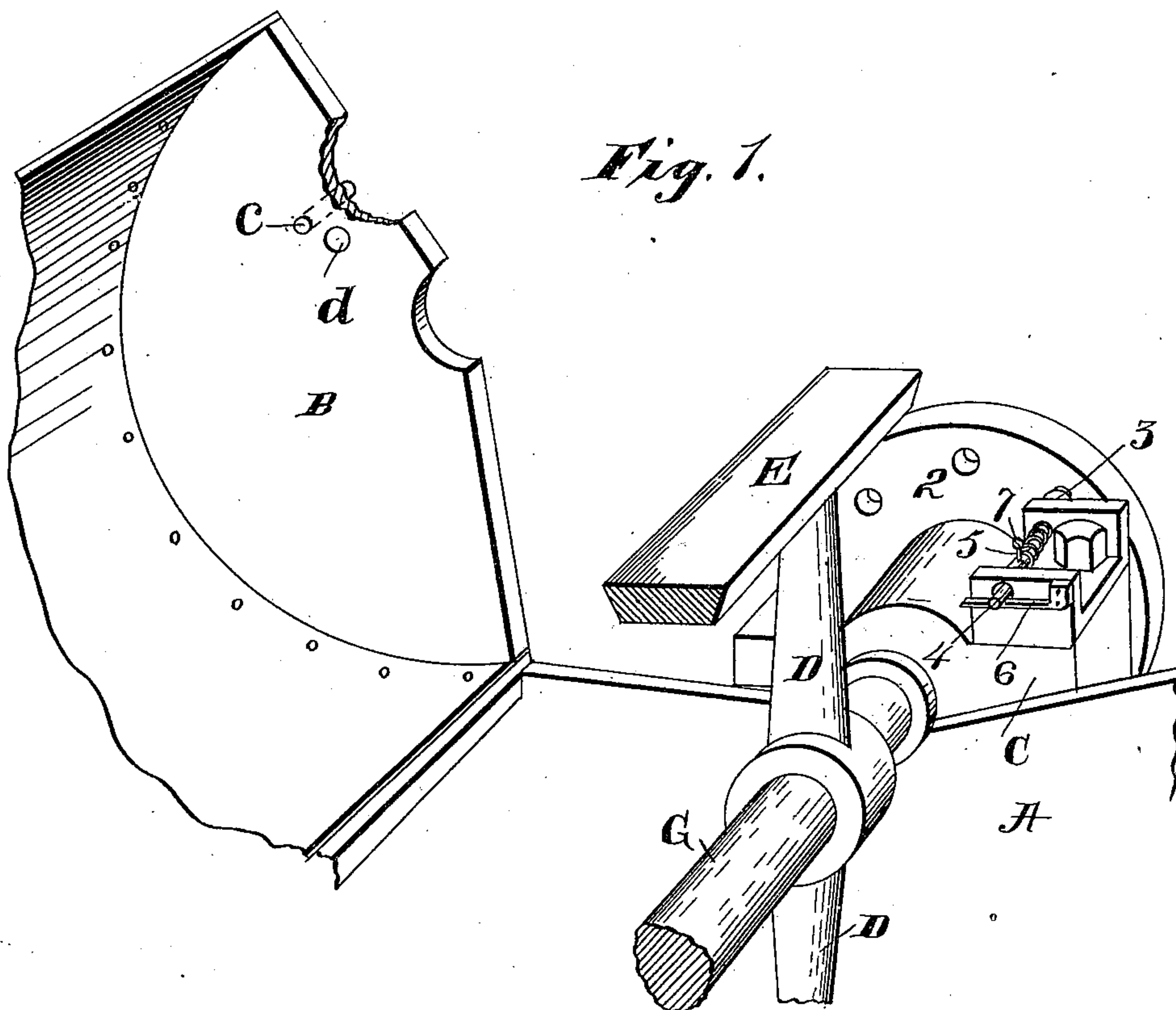


Fig. 2.

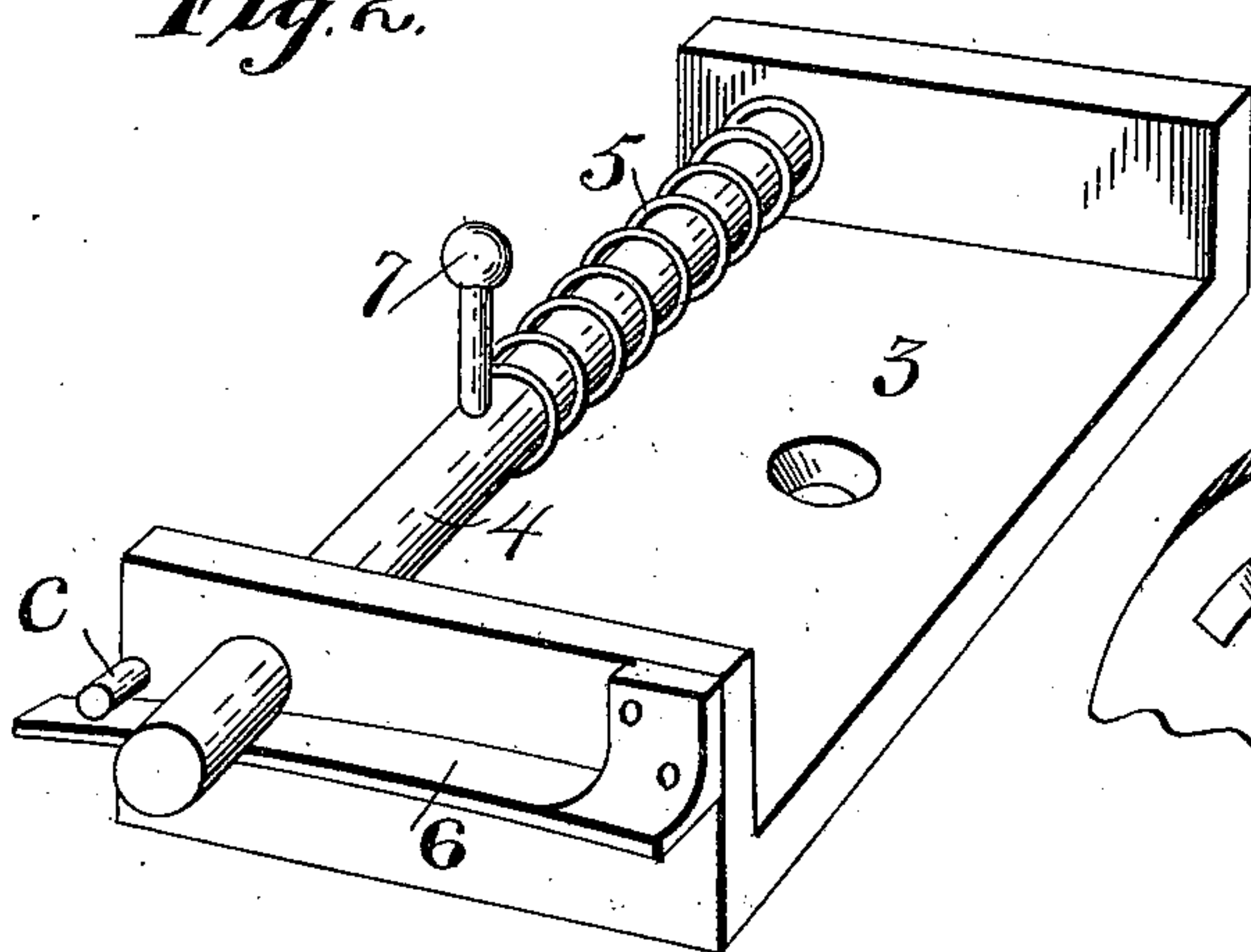
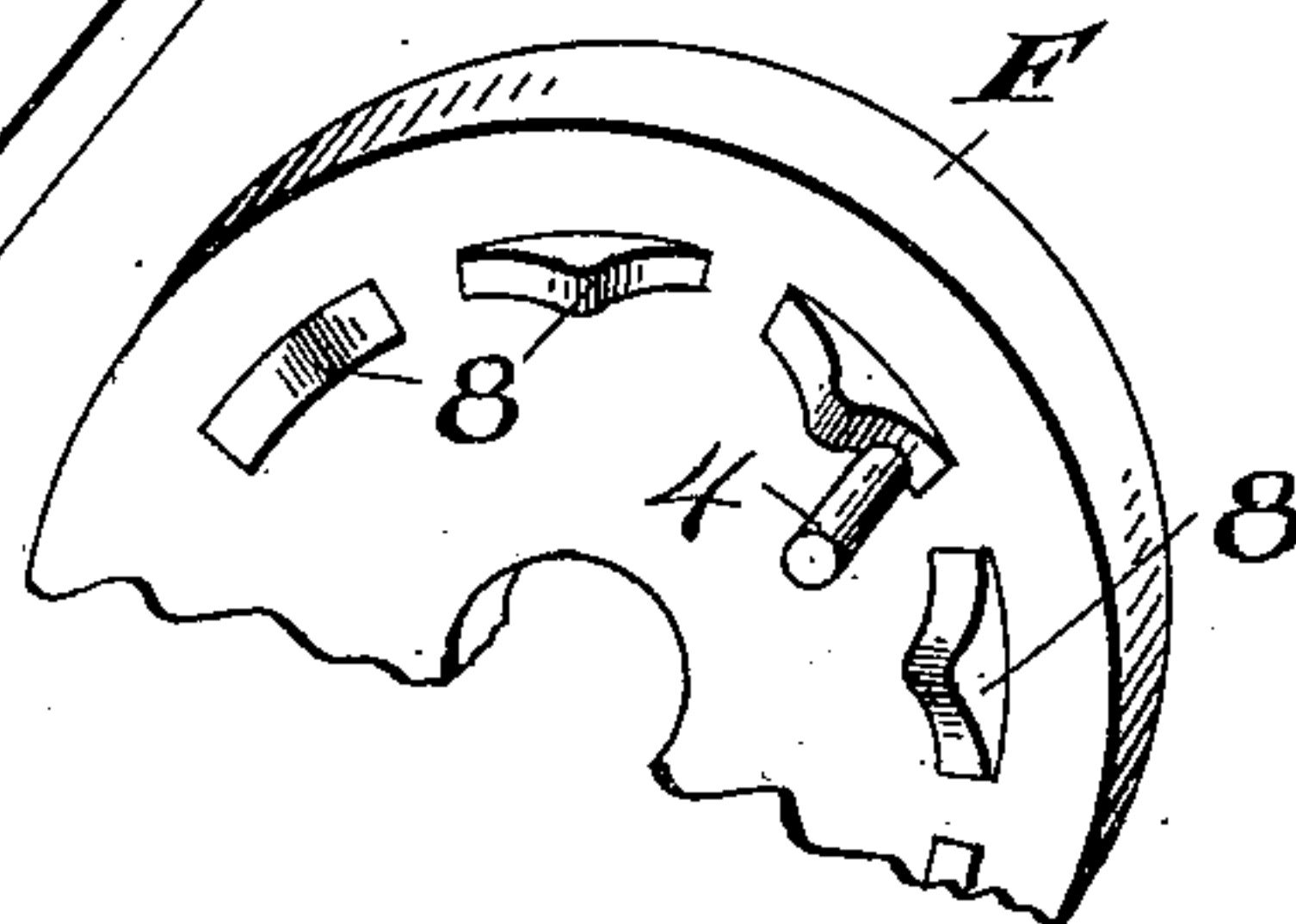


Fig. 3.



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JOSEPH T. WARD AND JOHN B. CURTIS, OF CHICOPEE FALLS, MASSACHUSETTS.

SAFETY DEVICE FOR COTTON-BEATERS.

SPECIFICATION forming part of Letters Patent No. 631,140, dated August 15, 1899.

Application filed July 7, 1899. Serial No. 723,025. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH T. WARD and JOHN B. CURTIS, citizens of the United States of America, residing at Chicopee Falls, in the
5 county of Hampden and State of Massachusetts, have invented new and useful Improvements in Safety Devices for Cotton-Beaters, of which the following is a specification.

This invention relates to cotton-beaters and
10 similar machines, the object being to provide improved safety devices therefor which so operate that a workman or other person cannot carelessly open the cap or cover of the machine while the same is running and expose
15 himself to serious injury thereby and whereby the machine once stopped and the cover thereof opened it cannot be thoughtlessly restarted until the cover shall be again shut and locked in such position by said safety devices; and the invention consists in providing
20 devices serving both for locking the beater-cover in a closed position while the machine is running and for so locking the beater-shaft in a stopped position while the
25 cover is open that the machine will not run until said cover shall be closed; and the invention consists, further, in providing improved stop devices and mechanism whereby the above-described results are attained, all
30 as hereinafter fully set forth, and more particularly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a perspective view illustrating one end of the box and cap or cover
35 of a cotton-beater, a portion of the beater-shaft having thereon a beater-bar arm and one of the bearing-boxes for said shaft, certain of said parts having applied thereto safety stop devices embodying our improvements.
40 Fig. 2 illustrates in perspective view certain of said safety devices on a larger scale than shown in Fig. 1 apart from said parts of the beater. Fig. 3 is a perspective view of one
45 end of the beater-shaft having thereon a stop-disk or similar element of modified construction as compared with that element shown in Fig. 1.

Referring to the drawings, A indicates the
50 box part of the beater, below the shaft G thereof, and B is the cap or cover of the machine

and is there shown in open position. The said shaft runs in bearings on the frame of the machine outside of the box A, as usual, (one of which is shown in Fig. 1,) and near said bearings and within said box are shown one
55 of the beater-arms D on said shaft and one of the beater-bars E on the end of said beater-arm. It is well known that the said beater-bars of the machine run under great speed—say about fifteen hundred revolutions per
60 minute—and that when the cover B of the machine is opened by a workman, as is frequently the case, while the machine is running at full speed very serious accidents occur, causing a hand or arm of said workman
65 to be drawn into the machine, and oftentimes the person is thereby fatally injured; and the main purpose of the within-described improvements is to render such accidents impossible by the application of the below-described
70 devices to the machine.

The cover B of the machine (shown in Fig. 1 with a part of one edge broken away) has a bolt-hole *d* in one end thereof and a bolt or pin *c* fixed on or in said end, which projects
75 beyond the outer face of said cover end. The shaft G of the beater has a disk 2 or other similar element, having spaces or openings, into which the end of a bolt may be entered, fixed on its outer end, in which in this case
80 is a series of bolt-holes, as shown in Fig. 1. A bolt-holding block 3 is bolted rigidly onto the cap C of the shaft-bearing box adjacent to the side of said disk 2 or in other convenient place, and on said block is a sliding bolt
85 4, which serves to lock the beater-shaft so that it cannot rotate. Across one end of said block 3 is a spring 6, which serves to hold said bolt in the forward position shown in Fig. 1. The section of a pin *c* shown in the last-
90 named figure over the end of said spring is a part of that one which is fixed in the end of said cap or cover B and illustrates the position of said pin in the operation of the stop devices, as below described. A retracting-
95 spring 5 is carried on said bolt 4 between a handle 7 thereon and the end of said block 3.

The operation of the above-described devices for preventing a person from carelessly
starting up the beater before the cover there- 100

of shall be closed and from opening said cover before the machine shall be stopped is as follows: Fig. 1 shows the cap B of the beater opened and the shaft-locking bolt 4 having its outer end entering a hole or opening in the side of said element 2, which is fixed on the end of the beater-shaft G, as aforesaid. Said bolt is moved to said position by grasping the handle 7 thereon after the machine shall have been stopped, after which the cap B is free to be opened. The retracting-spring 5 on said bolt 4 becomes compressed upon moving said bolt, as aforesaid, and following said bolt movement the spring 6, on the rear end of said block 3, moves upward behind said bolt and retains it in engagement with said disk element 2, so that though the belt that runs the beater be "shipped on" the latter cannot be started. Upon closing said cover the projecting end of said pin c thereon strikes the end of said spring 6, as shown in Fig. 2, and carries it below the rear end of said bolt 4, thus letting the rear end of the latter, driven by the spring 5 on said bolt, enter the bolt-hole d in the end of said cap or cover B, which thus becomes locked in a closed position, and the machine may now be started; but the cover cannot be again opened until the machine shall be stopped, so that the bolt can be disengaged from the cover by sliding it out and entering it into one of the said holes in said disk element. When this is done, the cover may be safely opened; but before the machine can again be started the bolt must be again brought to the position shown in Fig. 2 and again engaged with the cover B. Thus said cover is effectually locked in a closed position when the beater may be running, and the beater-shaft is effectually locked against rotation while the cover of the machine may be open.

Fig. 3 illustrates a modified construction of said disk 2, which has the bolt-holes therein, which modification consists in substituting a disk F, having a series of projections 8 thereon, with which said sliding bolt 4 may engage; but said modification would not provide for holding said disk against a certain degree of rotary movement equal to the extent of space between said projections, whereas it is preferable as an element of safety that the shaft of the machine shall be absolutely locked

against any rotary movement while the bolt engages said disk.

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

1. In a cotton-beater or analogous machine, the combination with the main shaft and the cap of the machine, of mechanism holding said shaft non-rotatably when said cap shall be opened and which is actuated by the movement of said cap in closing the same to simultaneously release said shaft and to lock said cap in a closed position, substantially as described.

2. In a cotton-beater or analogous machine, the combination with the driving mechanism of the machine, of a rotatable element thereon with which a stop-bolt may engage, of a bolt engaging said element and holding the same non-rotatably; mechanism retaining said bolt so engaged, a retracting-spring acting on said bolt, and a device carried on the cap of the machine acting to release said bolt from said engagement upon closing said cap, substantially as described.

3. In a cotton-beater or analogous machine, the combination with the cap and the main shaft thereof, of an element rotating with said shaft having openings in the side thereof into which a stop-bolt may enter, of a bolt entering said opening, a bolt-retaining spring, and a retracting-spring on said bolt, and a device on said cap acting to free said retaining-spring from said bolt upon swinging said cap to close the same, substantially as described.

4. The combination with the rotating mechanism of a cotton-beater or analogous machine, and the cap or cover thereof, of a locking device common to said cap or cover and said rotating mechanism, and means whereby the locking of said cap in a closed position effects the unlocking of said mechanism, and the unlocking of said cap or cover effects the locking of said mechanism against rotation, substantially as described.

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