

(No Model.)

F. R. STITZEL.
CLEANER FOR FLOUR BOLTS.

No. 571,411.

Patented Nov. 17, 1896.

FIG. 1.

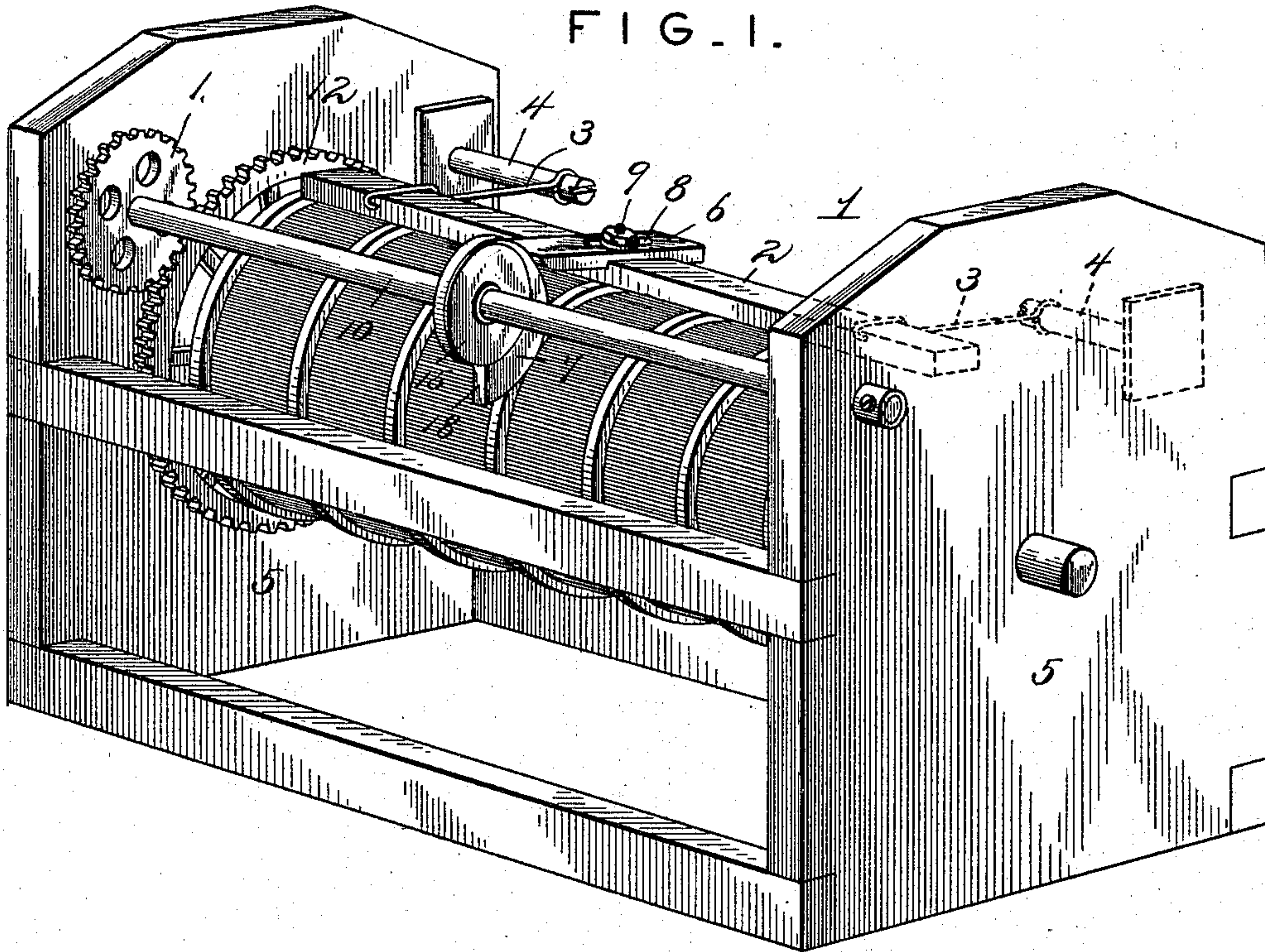


FIG. 2.

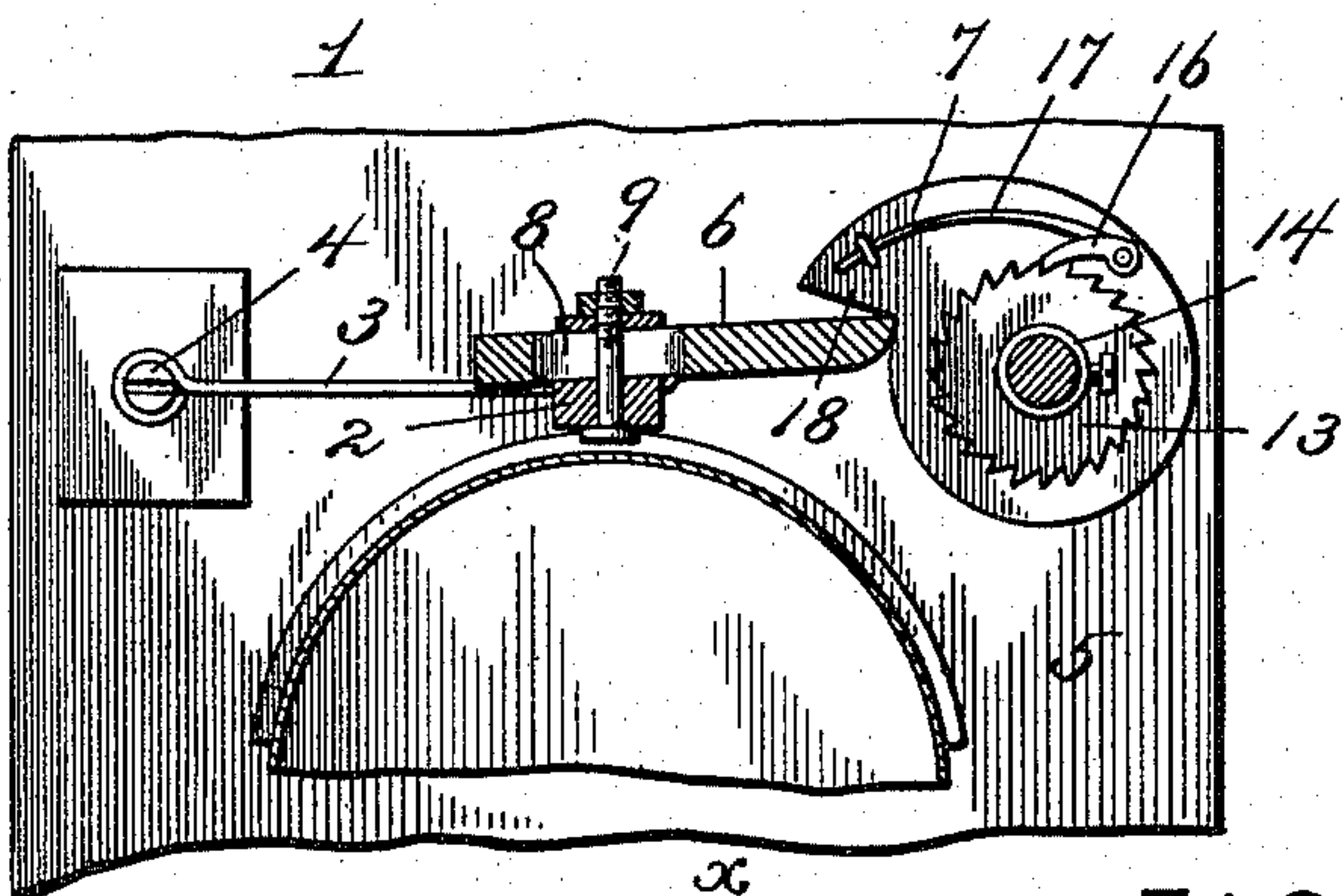


FIG. 3.

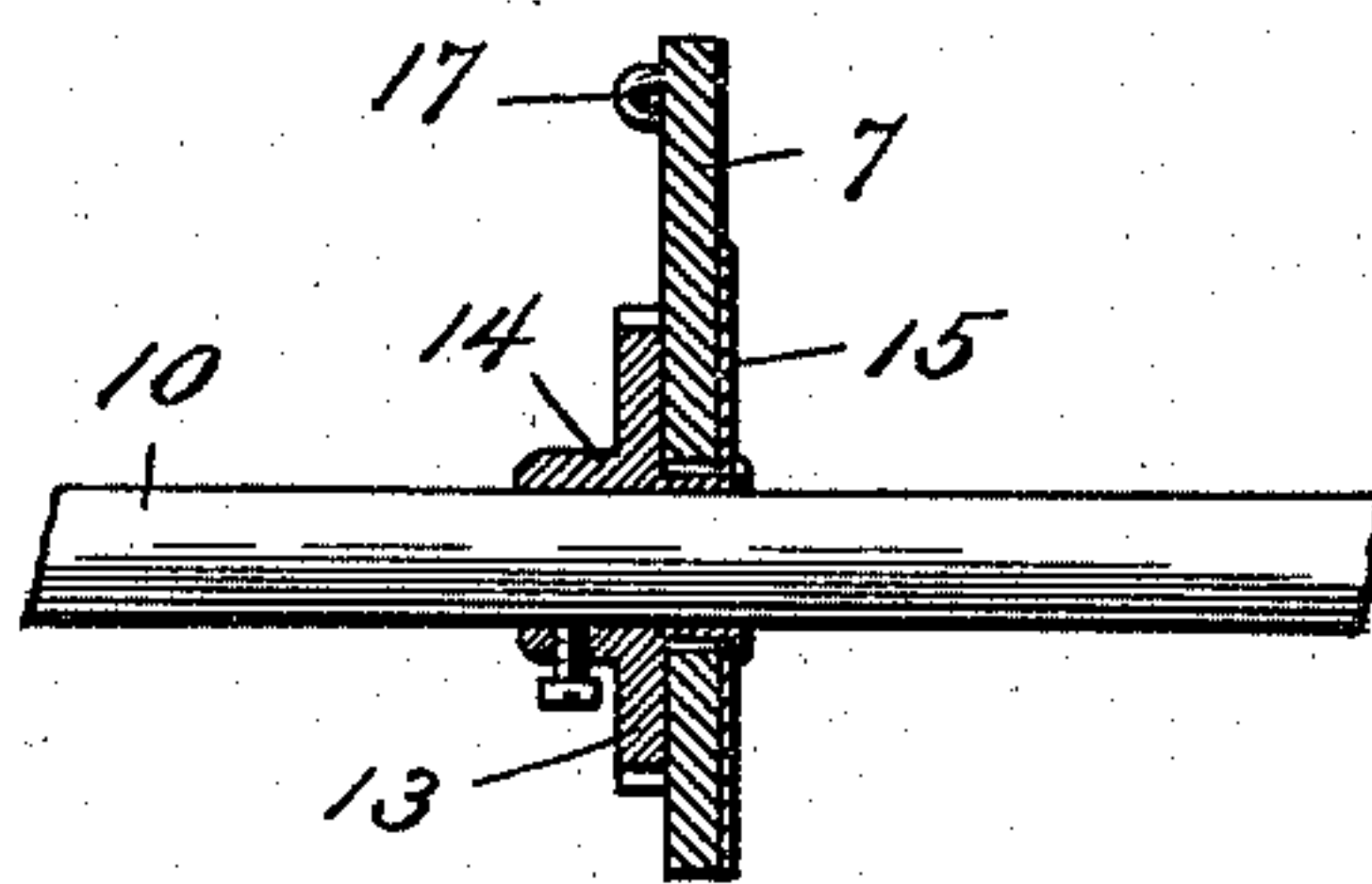


FIG. 4.

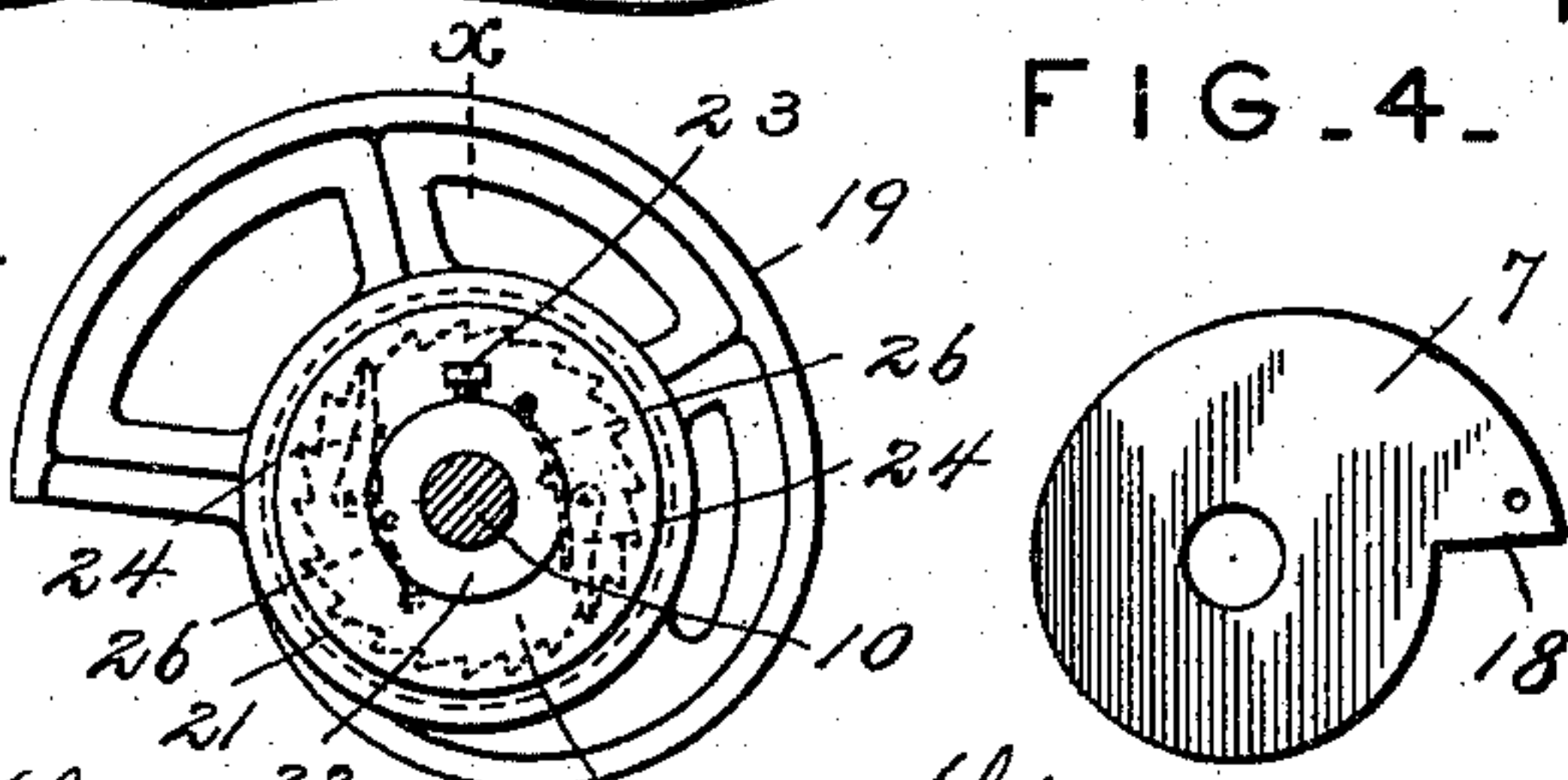
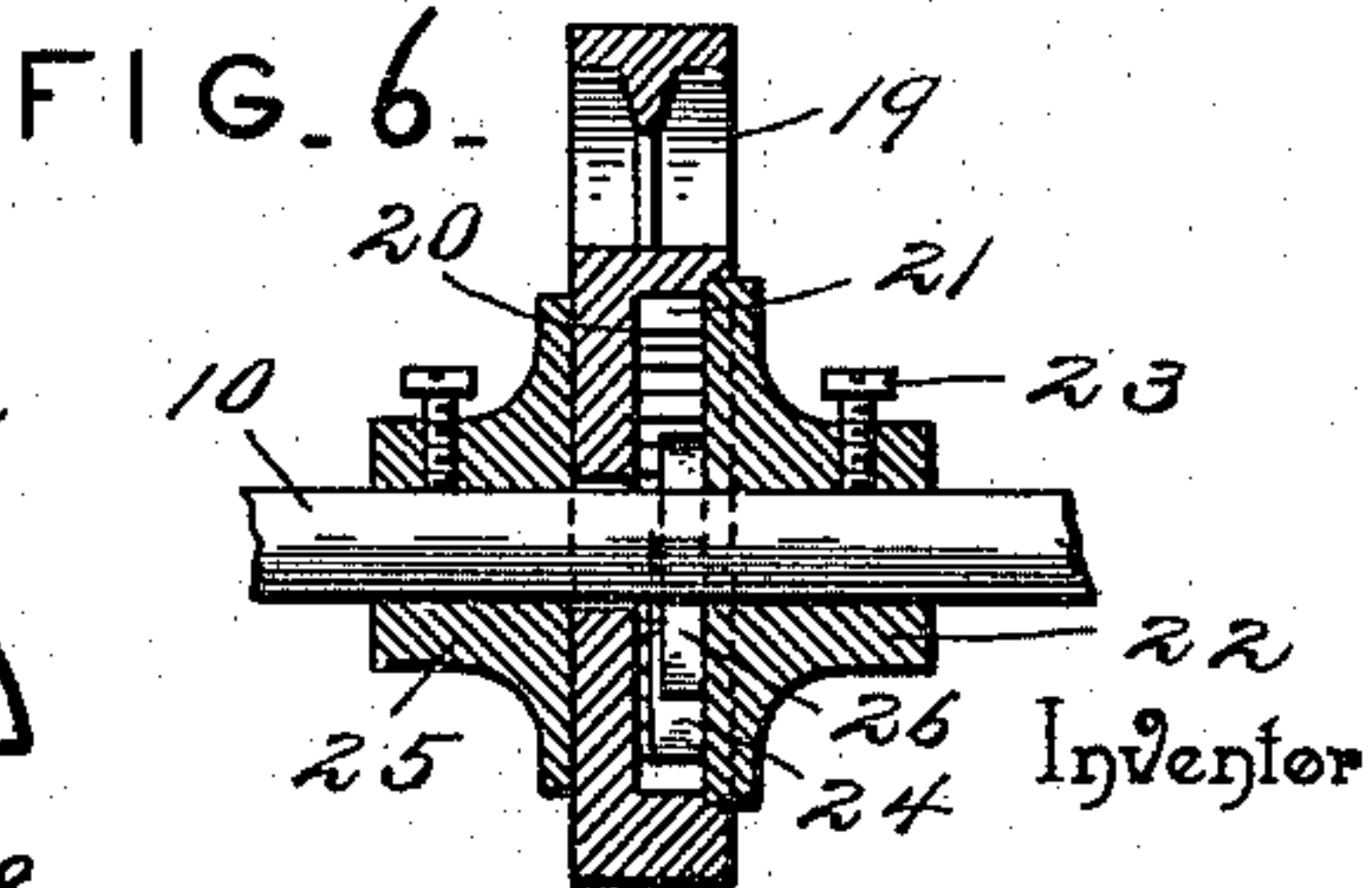
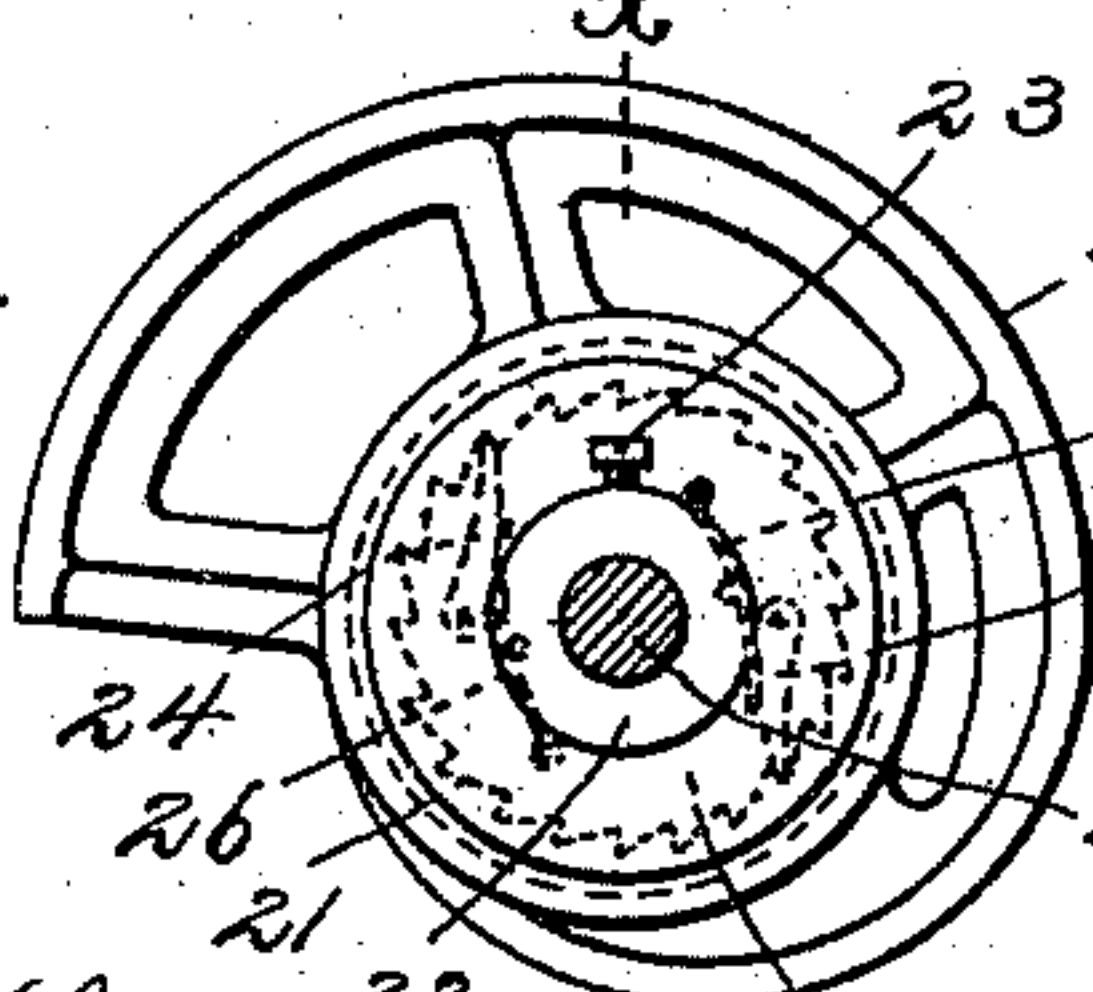


FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK R. STITZEL, OF LOUDONVILLE, OHIO.

CLEANER FOR FLOUR-BOLTS.

SPECIFICATION forming part of Letters Patent No. 571,411, dated November 17, 1896.

Application filed January 7, 1896. Serial No. 574,585. (No model.)

To all whom it may concern:

Be it known that I, FRANK R. STITZEL, a citizen of the United States, residing at Loudonville, in the county of Ashland and State of Ohio, have invented a new and useful Cleaner for Flour-Bolts, of which the following is a specification.

In bolting and reeling flour great annoyance is occasioned by the choking and clogging of the reels, especially if the flour is damp, and to obviate this difficulty brushes and other cleaning devices have been devised and result more or less injuriously to the cloth of the reel or bolt by coming and remaining in frictional engagement therewith.

This invention aims to provide a cleaner which will jar the cloth of the reel by striking the same a smart and light blow at intervals, thereby dislodging the particles of flour lodging in the meshes of the cloth and keeping the reel clean and free without wearing the same, as is the case with brushes.

Other objects and advantages are contemplated and will become apparent as the nature of the improvement is better understood, and to a full understanding of the merits reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a flour-bolt of ordinary construction, showing the invention in operative relation thereto. Fig. 2 is a detail view of the knocker and its actuating mechanism. Fig. 3 is a detail section of the cam and its supporting-ratchet. Fig. 4 is a detail view of the cam disconnected from its support. Fig. 5 shows a different way of constructing and mounting the cam. Fig. 6 is a transverse section on the line X X of Fig. 5.

Like numerals of reference denote similar and corresponding parts in all the figures of the drawings.

The invention is intended to be applied to bolts and reels for treating ground cereals of any nature, and is illustrated in connection with a flour-bolt 1 of ordinary construction

and mounting. The knocker consists of a bar 2, either of wood or metal and of sufficient mass to tap or strike the flour-bolt lightly, so as to dislodge the particles from the meshes of the cloth without injuring the latter. As shown, the knocker or bar 2 is supported by arms 3, which are pivoted at their outer ends to pins 4, extending inwardly from the sides of the framework 5 of the flour-bolt. These pins 4 have annular grooves near their outer ends, and the ends of the arms 3 are bent so as to fit into the said annular grooves, thereby preventing any appreciable longitudinal movement of the knocker in its vibratory movements. A tappet 6 is adjustably connected with the knocker and projects into the path of a cam 7, by which it is operated to actuate the knocker, so as to attain the desired end. This tappet is formed with a longitudinal slot 8, and a bolt 9, passing through the slot 8, serves to connect the tappet with the knocker in the located and adjusted position.

A shaft 10 extends approximately parallel with the flour-bolt, and is provided at one end with a pinion 11, which meshes with a gear-wheel 12, constructed to revolve with the flour-bolt and attached either to the latter or to its supporting shaft or journal. By this means the shaft 10 is caused to rotate with the flour-bolt, and the cam 7, mounted thereon, engaging with the tappet, operates the knocker to cause it to strike the bolt smartly, so as to clear the same of the particles tending to clog or choke its meshes.

The cam is mounted upon the shaft 10 in such a manner as to prevent breakage of the parts in the event of the motion of the flour-bolt or the shaft 10 being reversed, and as illustrated a ratchet-wheel 13 is secured upon the shaft 10, and is formed with a hub portion 14, upon which is loosely mounted the cam 7, the latter being confined between the ratchet-wheel 13 and a disk 15, mounted upon the end portion of the hub, and which latter has its extremity upset, so as to retain the disk 15 in proper position. A pawl 16 is pivoted to a side of the cam and its free end engages with the teeth of the ratchet-wheel 13, and a spring 17, secured to the cam, engages with the pawl and maintains the latter in operative relation with the ratchet-wheel. The

frictional engagement of the cam with its mountings is sufficient to maintain the parts in working relation and to cause the cam to rotate with the shaft 10, so as to actuate the
 5 knocker, since the latter is very light and requires the expenditure of a small amount of force to properly operate it. In the event of the flour-bolt or the shaft 10 rotating in a reverse direction the shoulder 18 of the cam
 10 7 will engage with the tappet 6, and the ratchet-wheel 13 will turn with the shaft 10 and its teeth will ride under the pawl 16, thereby allowing the cam to remain stationary without straining or breaking any of the parts.

15 The length of the shoulder 18 represents, practically, the lift of the cam, and the active portion of the latter gradually recedes from the outer end of the shoulder 18 to the base thereof. Hence the moment the tappet
 20 is released from the outer end of the cam it is again engaged by the latter and is gradually lifted, thereby elevating the knocker to a position to be again dropped upon the bolt to strike the latter a blow sufficient to dislodge
 25 the particles of flour adhering in its meshes. By adjusting the tappet 6 so as to project to a greater or less extent from the knocker the throw of the latter can be regulated, as will be readily comprehended.

30 As shown in Figs. 5 and 6, the cam 19 is formed in one side with a recess 20, the edge of which is provided with ratchet-teeth 21, and a collar 22, secured to the shaft 10 by binding-screw 23, is supplied with pawls 24
 35 to engage with the teeth 21, so as to cause the cam, collar, and shaft to move together clockwise, but admitting of the shaft 10 turning backward without injuring the parts. A collar 25 is secured upon the shaft 10, and the
 40 cam 19 is confined between the collars 22 and 25. The pawls 24 are held in engagement with the teeth 21 by springs 26, and the parts 21, 24, and 26 are housed and protected by the walls inclosing the recess 20, within which the
 45 parts are located.

Having thus described the invention, what is claimed as new is—

1. The combination with a flour bolt or reel, of a knocker to strike the same smartly, and an actuating-cam mounted upon a shaft to
 50 rotate therewith in one direction and to remain stationary upon the turning of the said shaft in a reverse direction, substantially as set forth for the purpose described.

2. The combination with a flour bolt or reel, 55 of a pivotally-supported knocker to strike the same smartly, a tappet adjustably connected with the knocker, and an actuating-cam to engage with the tappet for operating the
 60 knocker and mounted upon a shaft to rotate therewith in one direction and to remain stationary upon the turning of the shaft in an opposite direction, substantially as set forth.

3. The combination with a flour bolt or reel, of a knocker for striking the sides thereof, a 65 shaft, a ratchet-wheel secured upon the shaft, a cam mounted upon the ratchet-wheel and adapted to engage with and operate the knocker, and a pawl carried by the cam and adapted to engage with the teeth of the ratchet-wheel, substantially as and for the purpose
 70 set forth.

4. The combination with a flour bolt or reel, of a knocker, arms secured at one end to the knocker and pivotally supported at their op- 75 posite end, a tappet having adjustable connection with the knocker, a shaft adapted to be driven by the flour-bolt-actuating mechanism, a ratchet-wheel secured upon the shaft, a cam mounted upon the ratchet-wheel so as
 80 to turn loosely thereon, a pawl attached to the cam and adapted to take into the teeth of the ratchet-wheel to secure the cam against rotation in one direction, and a spring for holding the free end of the pawl in engagement
 85 with the teeth of the ratchet-wheel, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK R. STITZEL.

Witnesses:

C. L. PETTICREW,
 M. DERRENERGER.