

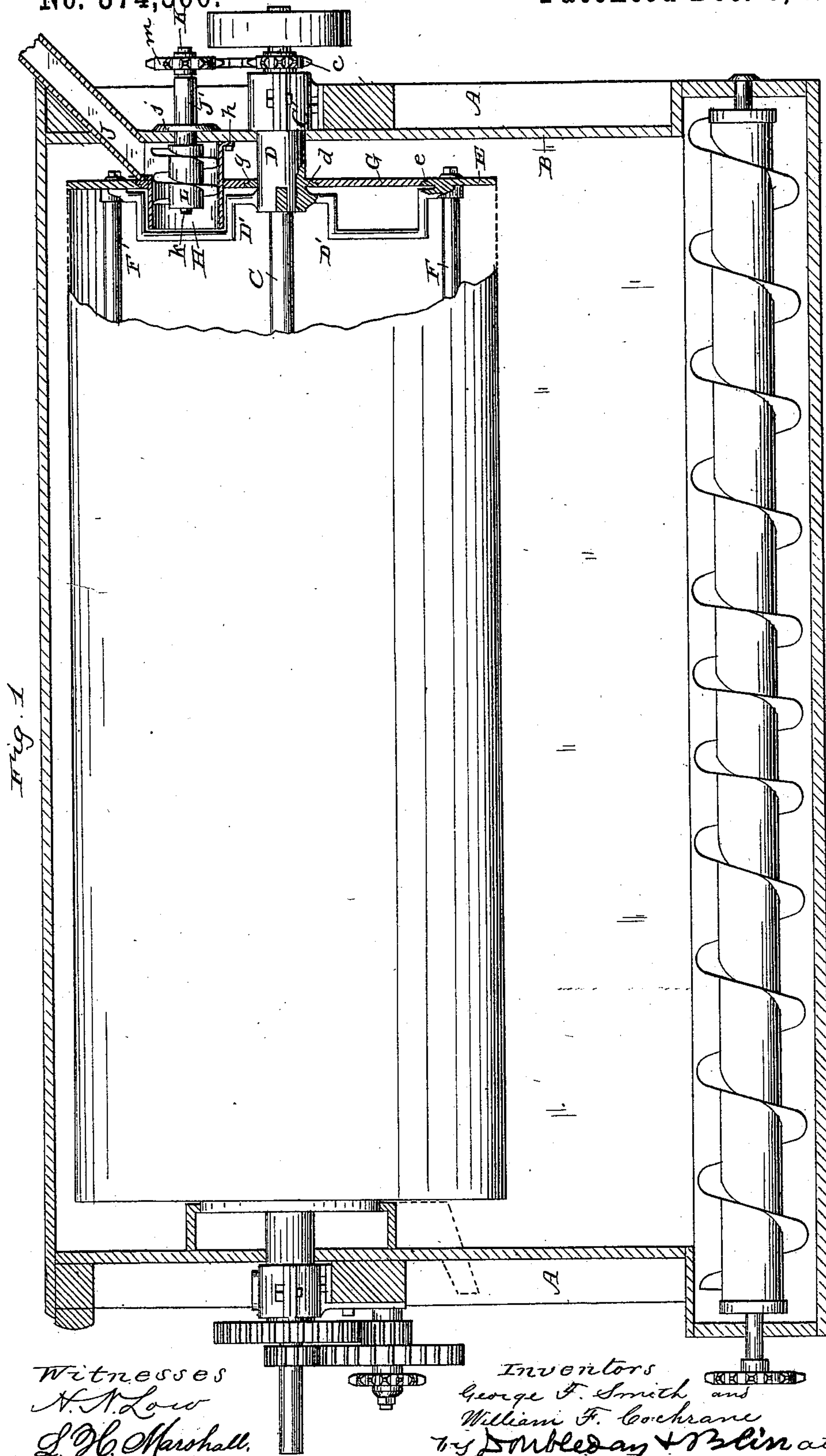
(No Model.)

2 Sheets—Sheet 1.

G. T. SMITH & W. F. COCHRANE.  
FLOUR BOLT.

No. 374,500.

Patented Dec. 6, 1887.



Witnesses  
H. A. Low  
L. H. Marshall.

Inventors  
George F. Smith and  
William F. Cochrane  
by *Smiley & Blin* attys.

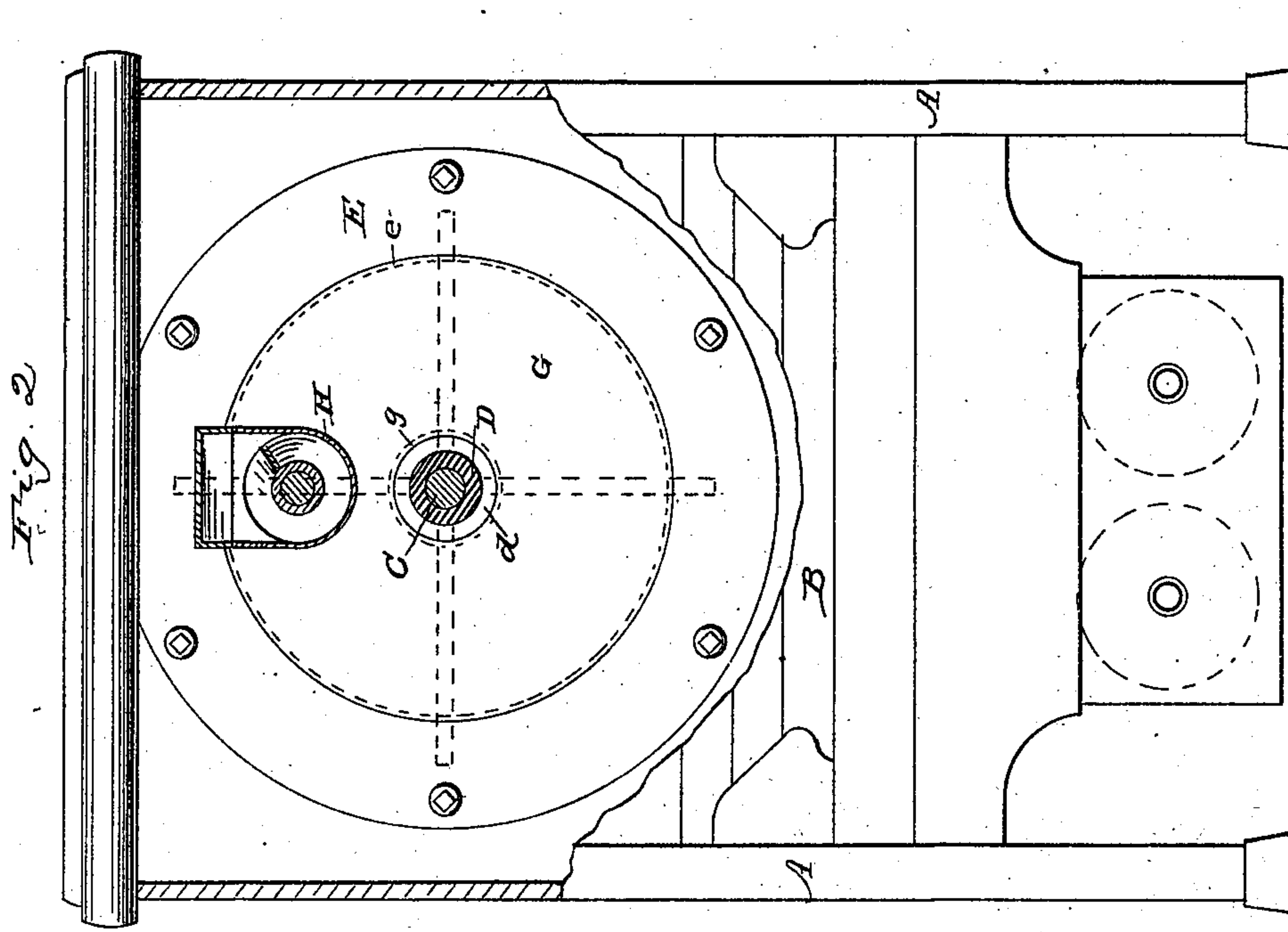
(No Model.)

2 Sheets—Sheet 2.

G. T. SMITH & W. F. COCHRANE.  
FLOUR BOLT.

No. 374,500.

Patented Dec. 6, 1887.



Witnesses  
H. K. Low  
L. H. Marshall.

Inventors  
George T. Smith and  
William F. Cochrane  
by *Sorbedan & Co.*



# UNITED STATES PATENT OFFICE.

GEORGE T. SMITH AND WILLIAM F. COCHRANE, OF JACKSON, MICHIGAN.

## FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 374,500, dated December 6, 1887.

Application filed April 25, 1883. Serial No. 92,893. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE T. SMITH and WILLIAM F. COCHRANE, citizens of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Flour-Bolts, of which the following is a specification, reference being had therein to the accompanying drawings.

10 Figure 1 is a vertical longitudinal section of a reel containing the invention. Fig. 2 is an end view, partly in section.

We do not in this case claim any features of invention which form the subject-matter of or  
15 are referred to in the claims of our concurrent applications Nos. 92,894 and 99,890, but propose to restrict this case to the invention which is clearly pointed out in the claims hereof.

20 A A is the frame, and B the casing at the head or receiving ends of the bolt.

C is the through beater-shaft.

c is a sprocket-wheel keyed to the beater-shaft.

25 D is a hollow trunnion mounted at its outer ends in a bearing, C', bolted to one of the cross-girts of the frame and adapted inside to receive and support the through beater-shaft C. The hollow trunnion D is provided at its inner end with a number of radially-projecting spokes or  
30 arms, D' D', each of which is angular in form, as plainly shown in Fig. 1, for a purpose which will soon be described.

The reel-head is constructed of concentric sections, preferably three in number, of which  
35 the inner section, d, is cast upon the trunnion D and has its outer face rabbeted, as at g, Fig. 1. The outer section, E, of the reel-head is attached to or cast in the same piece with the outer ends of the radial arms or spokes D' D',  
40 and is provided near its periphery with a series of holes, in which are seated the screw-threaded ends of the longitudinal bars F F, which are ordinarily employed for connecting the reel-heads in this class of bolts. The in-  
45 termediate section, G, of the reel-head is of such width on radial lines as to fill the annular space between the inner section, d, and the outer section, E, and is correspondingly rabbeted upon its inner face at both edges to fit  
50 the rabbets eg in the outer and inner sections, and can therefore be easily removed from its position shown in the drawings by moving it

laterally toward the outer end of the hollow trunnion, as will be readily understood without further explanation.

55 H is the tubular shell or casing of the feeder, and is inserted in a horizontal position in an opening formed for its reception in the intermediate section, G, of the reel-head. This casing is open at both ends and is further provided with an opening through its upper surface, which communicates with a spout, J, through which the material to be bolted is delivered.

60 As indicated in Fig. 1, the shell H may be constructed with a flange, h, around its outer open end, by means of which it can be firmly attached to the end casing, B, of the bolt-chest; and it may be further provided upon its upper surface with a flange properly rabbeted, so as  
70 to engage with a correspondingly-rabbeted portion of the stationary section G of the reel-head; or, when desired, this shell H may be provided with radially-projecting lugs or ears, or their equivalents, to receive bolts for securing it firmly in place.

J' is a horizontal sleeve provided centrally, or thereabout, with a laterally-projecting flange, j, and is bolted to the end casing, B.

80 K is a driving-shaft seated in the sleeve J', and carries at its inner end a feeding-worm, L, the inner end, k, of the shaft being preferably screw-threaded, so as to take into a screw-threaded seat or socket in the feeding-worm L. A driving-chain connects the sprocket-  
85 wheels c m, so that the worm L rotates with the central beater-shaft, C, and thrusts forward and out of the inner end of the shell H, and consequently into the interior of the reel, such material as may be delivered to the feeder  
90 through the spout J. In consequence of the shell H projecting into the reel some distance beyond the inner end of the feeding-worm L the inner end of the shell will always be closed by a body of material, even after the supply in  
95 the delivery-spout L has been exhausted, thus effectually preventing any current of air from passing through the feeding mechanism into the reel. The angular portions D' D' are concentric with the shell H, so that the reel can  
100 rotate freely without these arms or spokes striking said shell.

While we prefer to make the arms D' D' in the angular form shown, in order that their



inner ends may return to within close proximity of the part *d* of the reel-head, at which point they join the hollow trunnion, yet we do not wish to be limited to this precise construction, it being apparent that by extending the  
 5 trunnion farther into the reel the lower bend of the arms might be dispensed with, the arms being constructed to project in straight lines from the trunnion to a point beyond the outer  
 10 side of the shell or case H, and then be bent at practically a right angle, so as to reach outward and connect with the outer section, E, of the reel-head; nor do we wish to be limited to constructing the reel-head in three sections,  
 15 it being apparent that the third section, *d*, might be omitted and the stationary section G extended inward into close contact with the hollow trunnion D, although in practice we prefer the construction shown.

20 It will be seen that the worm L acts as a pusher to thrust material inward through the inclosing-case and out of its inner end.

We are aware that flour-bolt reels have been provided with heads consisting of an outer rotating drum supported upon the ends of the  
 25 longitudinal bars, which latter are connected with the central reel-shaft, and further consisting of a stationary part situated between the outer rotating rim and the central reel-shaft, and we are also aware that eccentrically-  
 30 arranged feeding-spouts have opened through said stationary part of the reel-head into the interior of the reel, through which feeding-

spout material has been forced by a pusher, and hence we do not claim such arrangement 35 of parts, broadly.

What we claim is—

1. In a flour-bolt, the combination of the casing, the rotating reel mounted therein, the central reel-shaft, the reel-head having an outer 40 rotating section and a stationary section between the outer section and the reel-shaft, a feeder having an inclosing-casing projecting through the stationary part of the reel-head into the interior of the reel, and spokes con- 45 necting the reel-shaft with the outer section of the reel-head, they being angular in form, whereby as they revolve they may pass the inner projecting end of the inclosing-casing of the feeder, substantially as set forth. 50

2. In a flour-bolt, the combination of a rotating reel, a feeding mechanism consisting of a worm-feeder, and a casing in which the feeder works and which projects through the reel-head, said feeder-casing extending beyond the 55 end of the worm, whereby a body of material is accumulated between the end of the worm and the inner end of the casing to intercept air-currents, substantially as set forth.

In testimony whereof we affix our signatures 60 in presence of two witnesses.

GEORGE T. SMITH.

WILLIAM F. COCHRANE.

Witnesses:

WM. H. DICKEY;

C. F. KNAPP.