

No. 672,248.

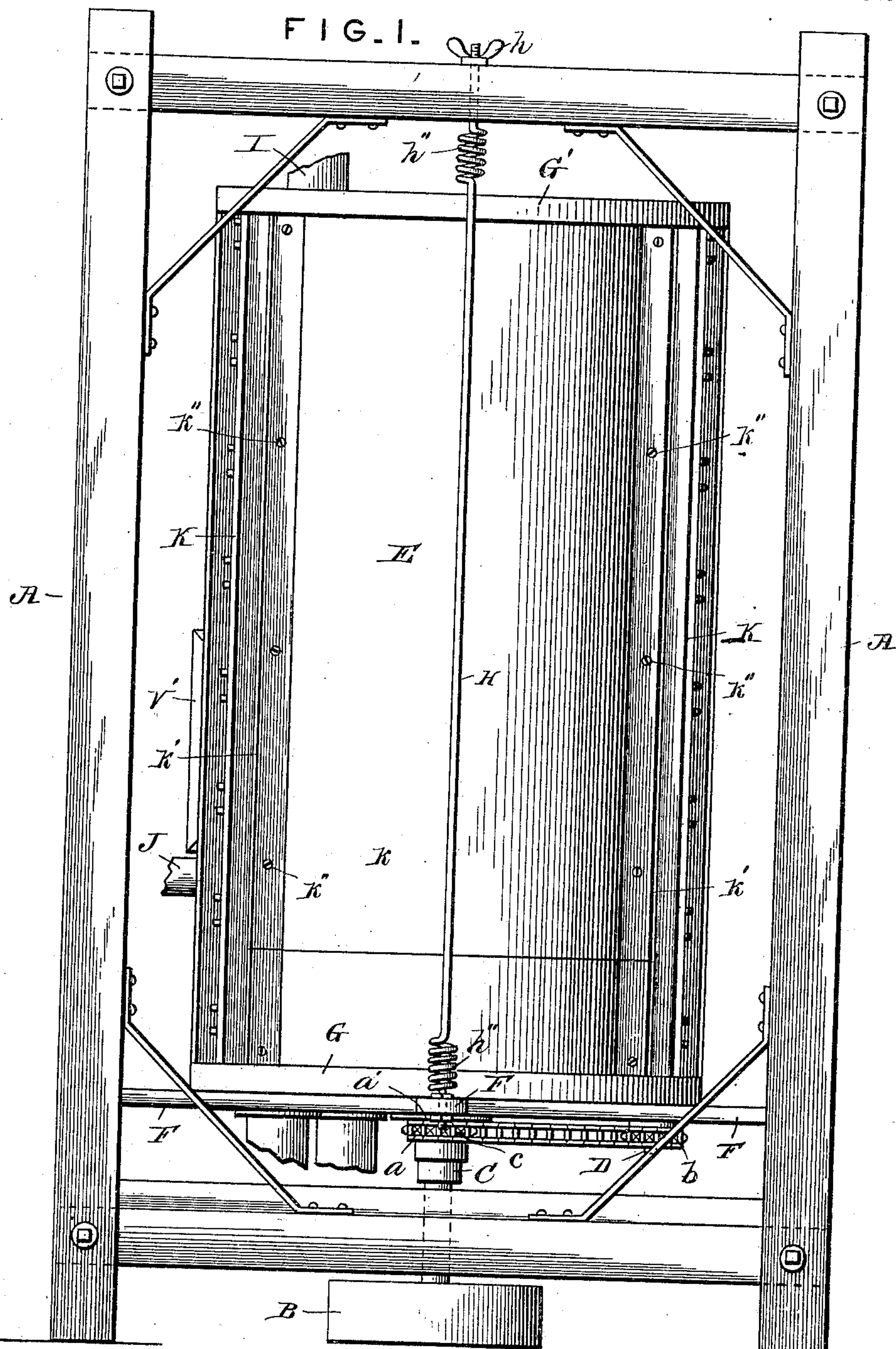
Patented Apr. 16, 1901.

C. L. WHITE.  
FLOUR BOLTING MACHINE.

(No Model.)

(Application filed Apr. 2, 1900.)

6 Sheets—Sheet 1.



ATTEST.

Harry L. Ames,  
E. W. Anderson

INVENTOR.

Charles L. White.

By E. W. Anderson

his Atty.

No. 672,248.

Patented Apr. 16, 1901.

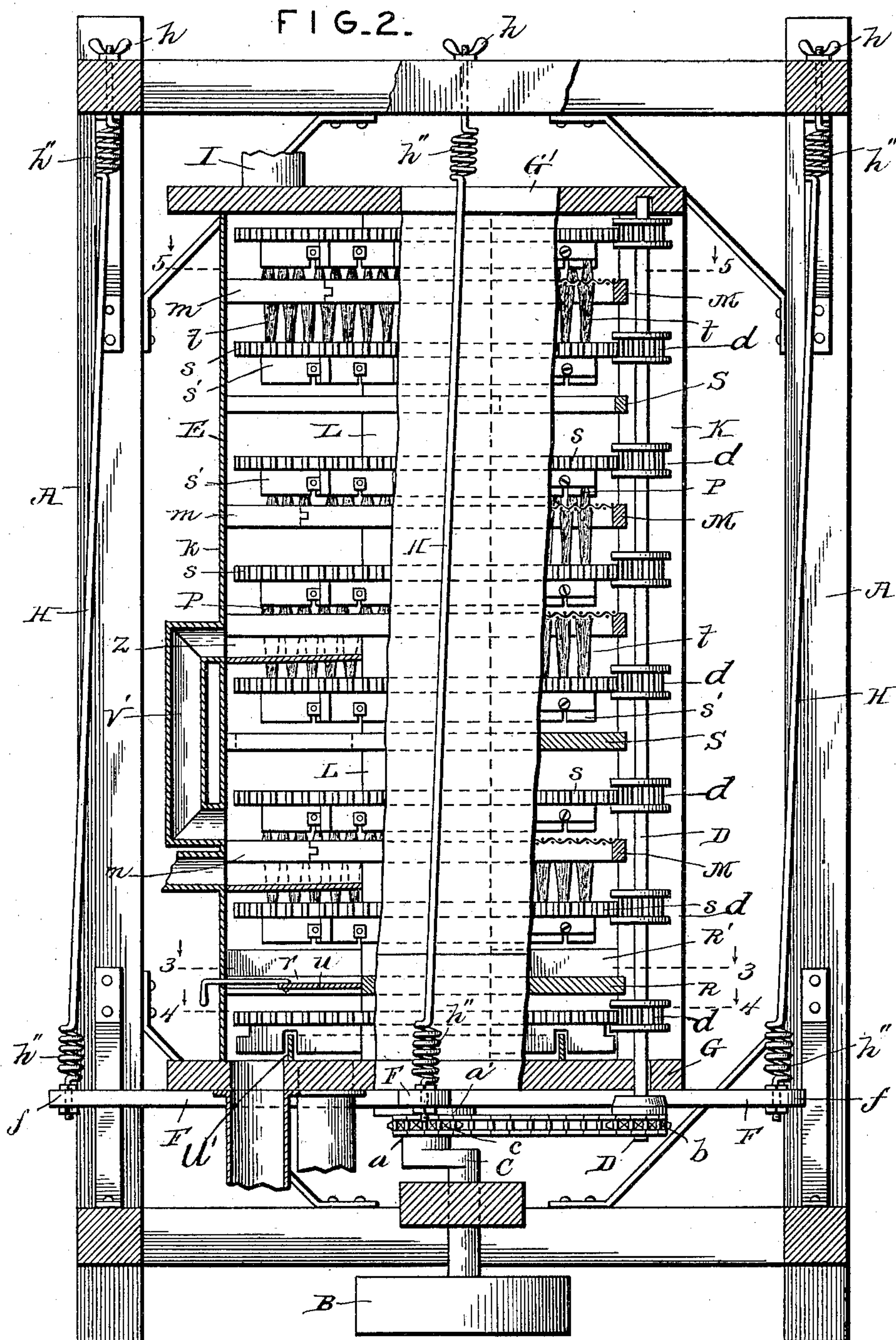
C. L. WHITE.

FLOUR BOLTING MACHINE.

(Application filed Apr. 2, 1900.)

(No Model.)

6 Sheets—Sheet 2.



ATTEST-

Harry L. Amer.  
G. M. Anderson

INVENTOR.

Charles L. White.

By E. W. Anderson  
his Atty.



No. 672,248.

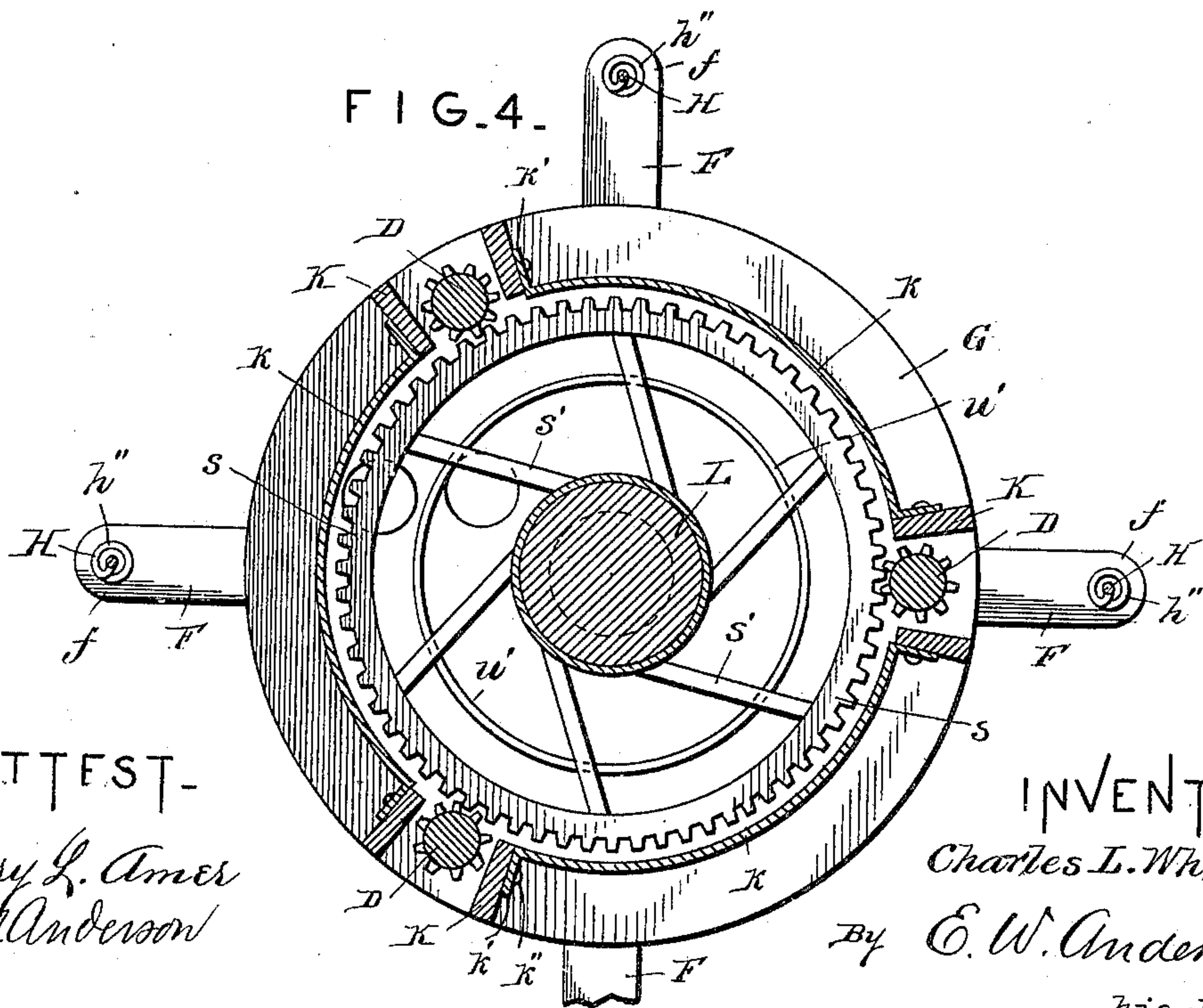
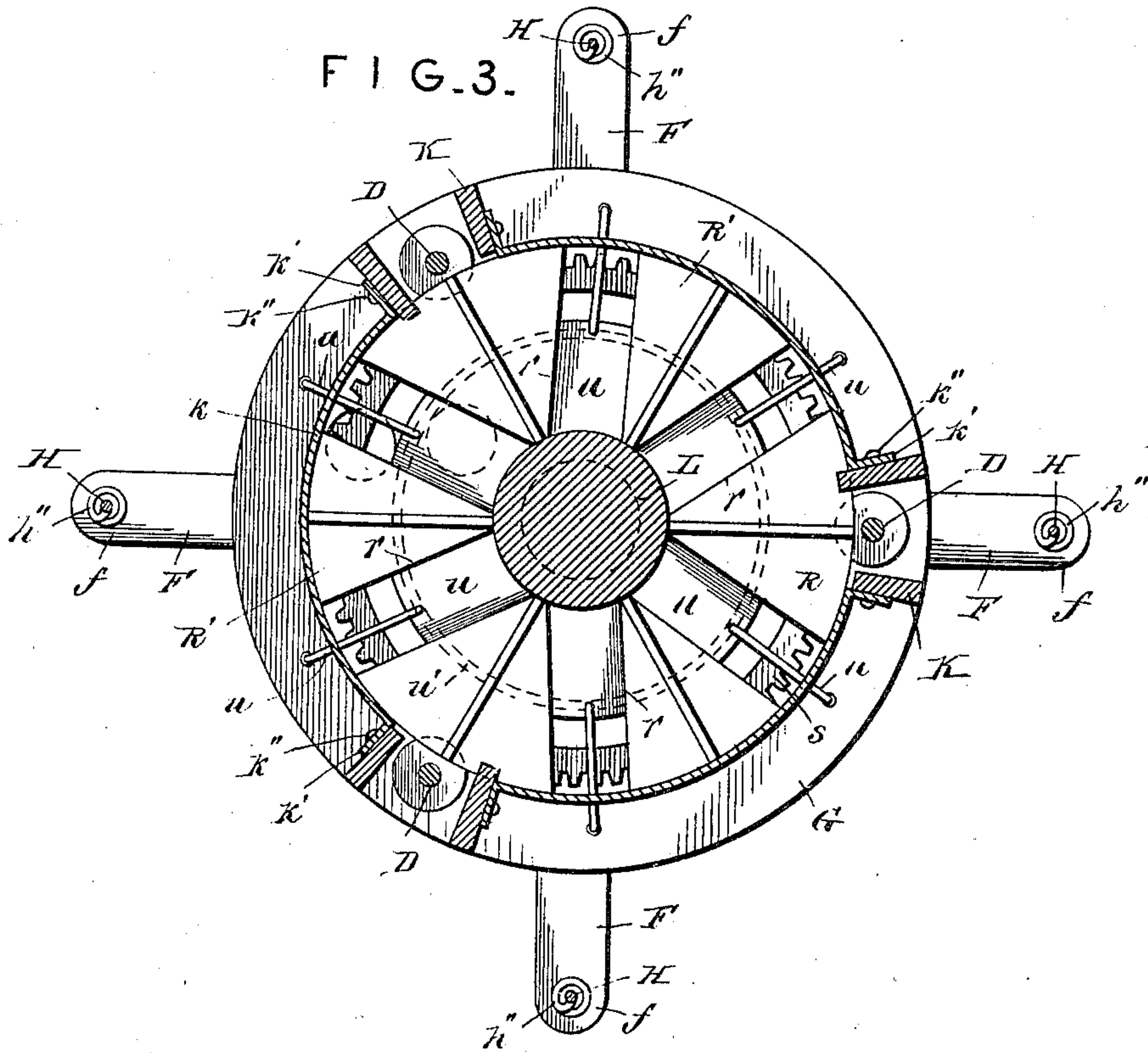
Patented Apr. 16, 1901.

C. L. WHITE.  
FLOUR BOLTING MACHINE.

(No Model.)

(Application filed Apr. 2, 1900.)

6 Sheets—Sheet 3.



ATTEST-  
Harry L. Amer  
J. W. Anderson

INVENTOR.  
Charles L. White.  
By E. W. Anderson  
his Atty.

No. 672,248.

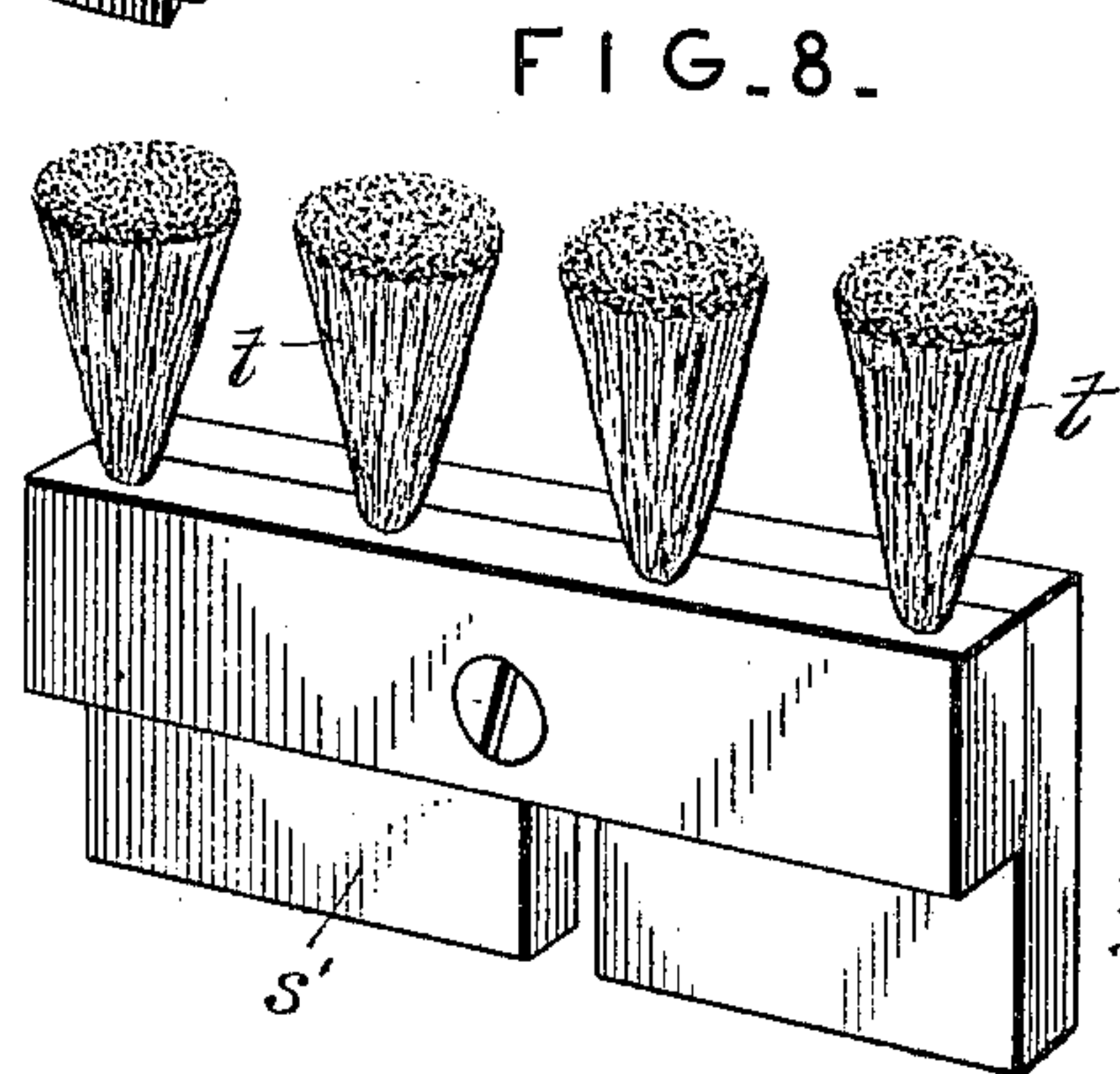
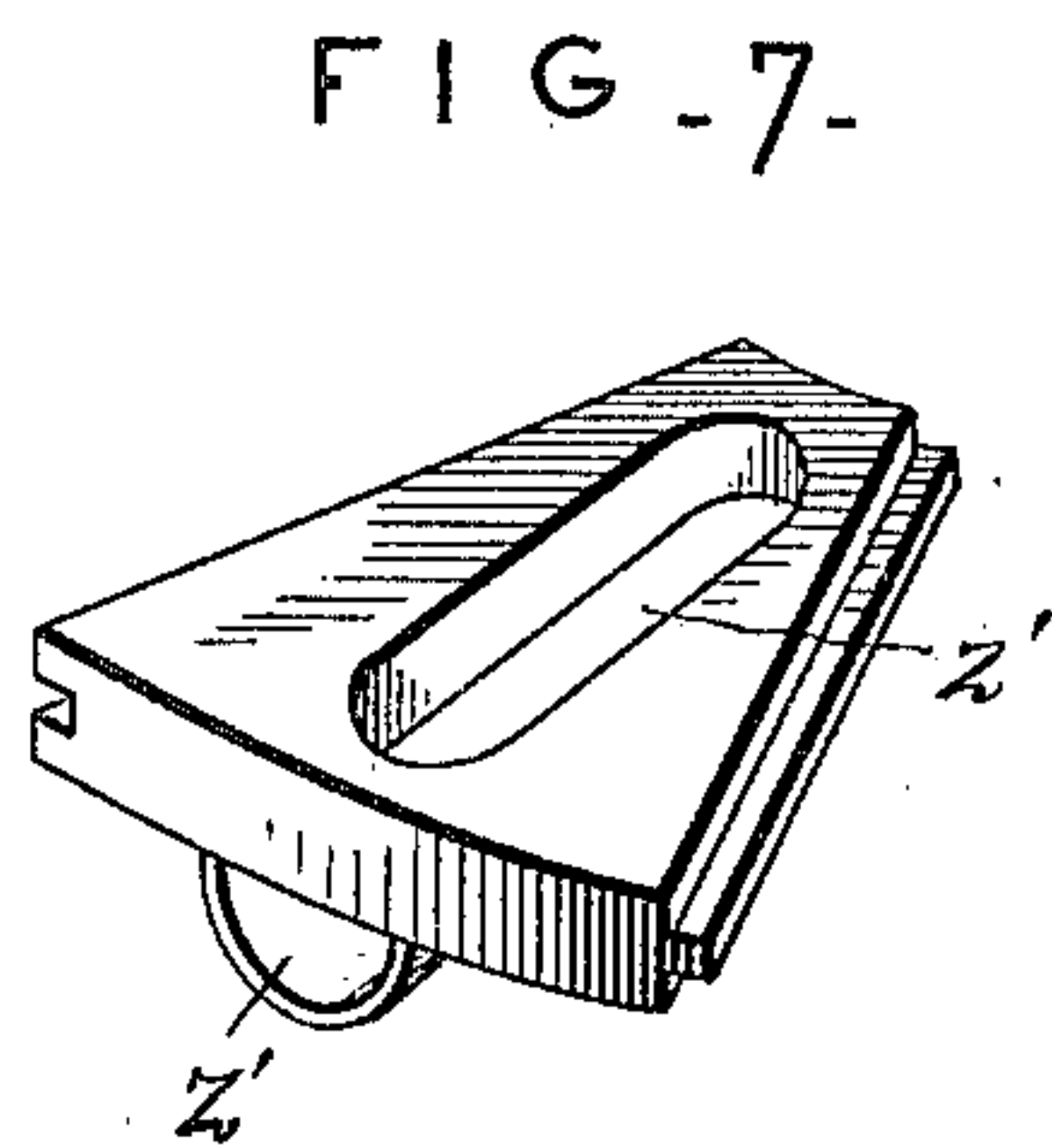
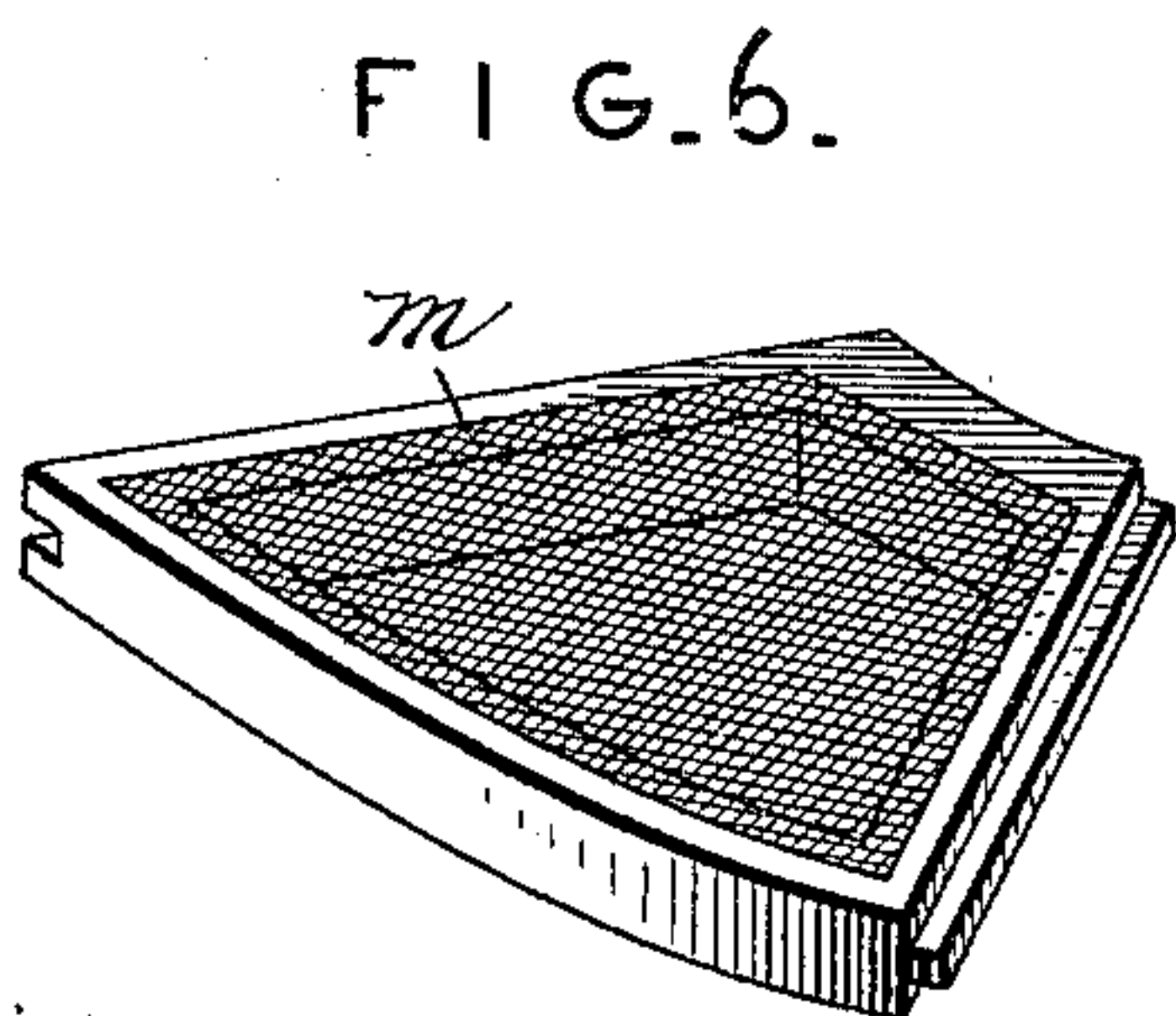
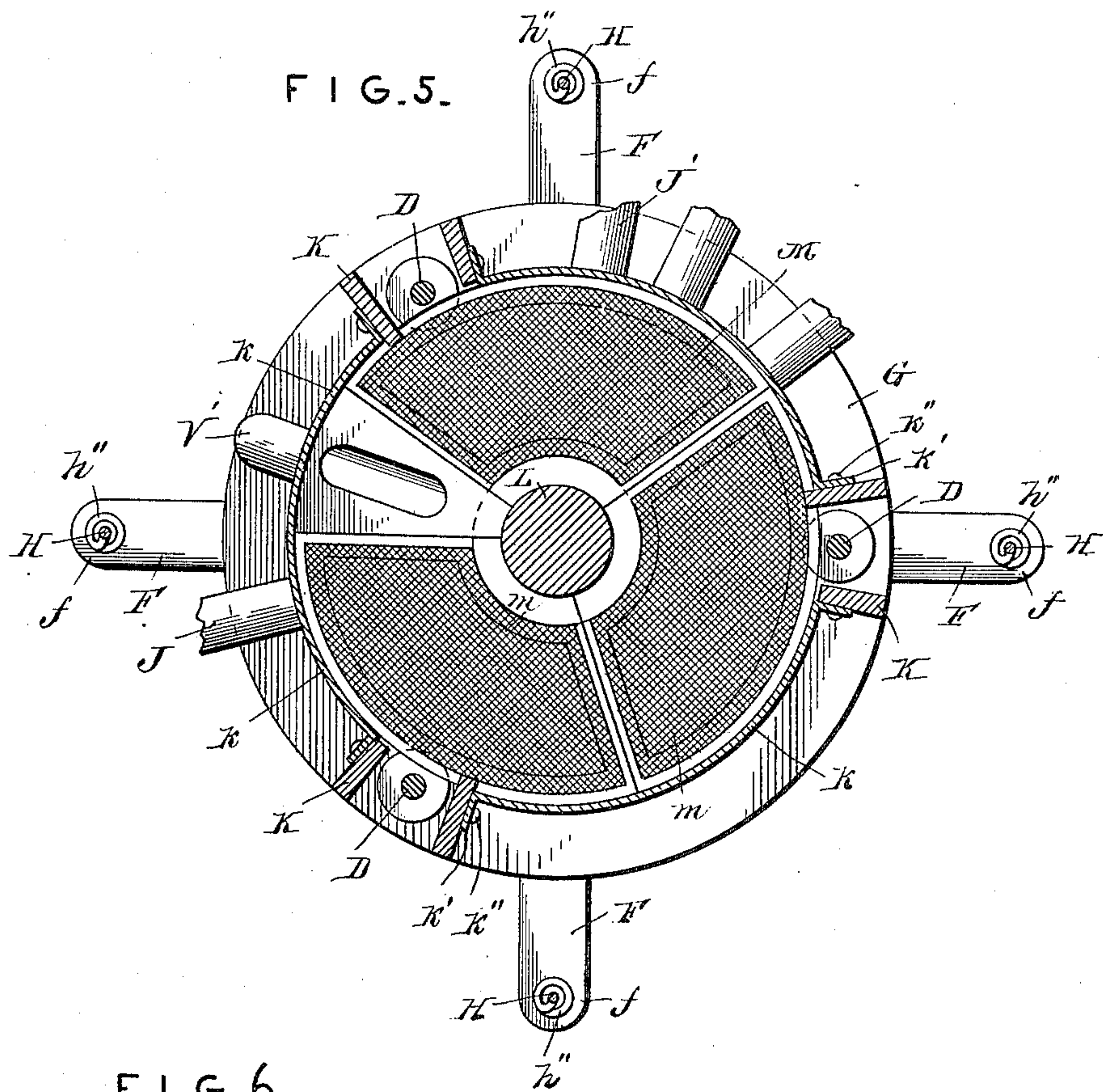
Patented Apr. 16, 1901.

C. L. WHITE.  
FLOUR BOLTING MACHINE.

(No Model.)

(Application filed Apr. 2, 1900.)

6 Sheets Sheet 4.



ATTEST.

Harry L. Amer.  
G. W. Anderson

INVENTOR.

Charles L. White.

By E. W. Anderson  
his Atty.



No. 672,248.

Patented Apr. 16, 1901.

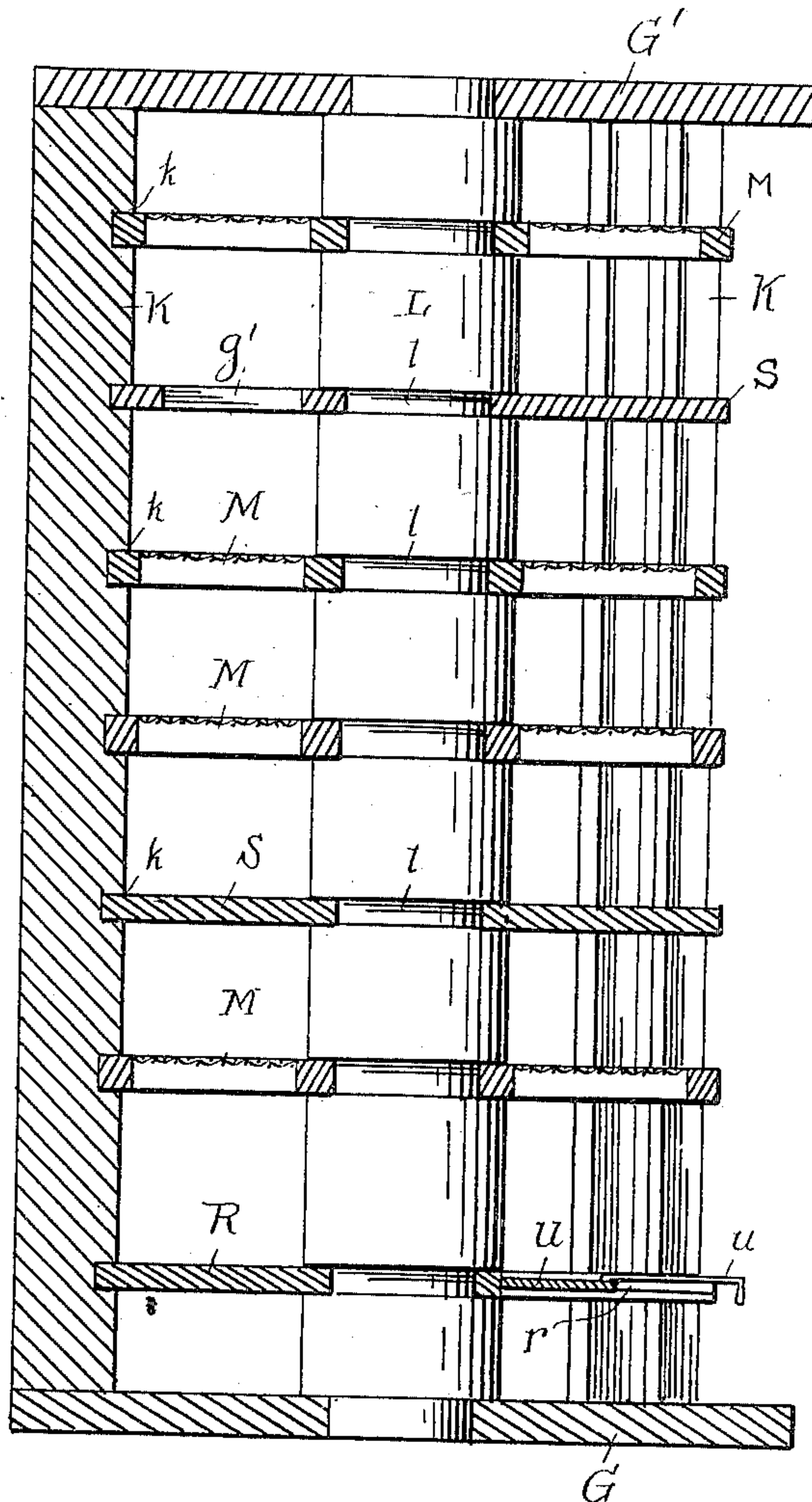
C. L. WHITE.  
FLOUR BOLTING MACHINE.

(Application filed Apr. 2, 1900.)

(No Model.)

6 Sheets—Sheet 5.

FIG. 9.



WITNESSES:

*George M. Anderson*

*Mellie G. McCarthy*

INVENTOR:

*Charles L. White*

*E. W. Anderson*  
his ATTORNEY.

No. 672,248.

Patented Apr. 16, 1901.

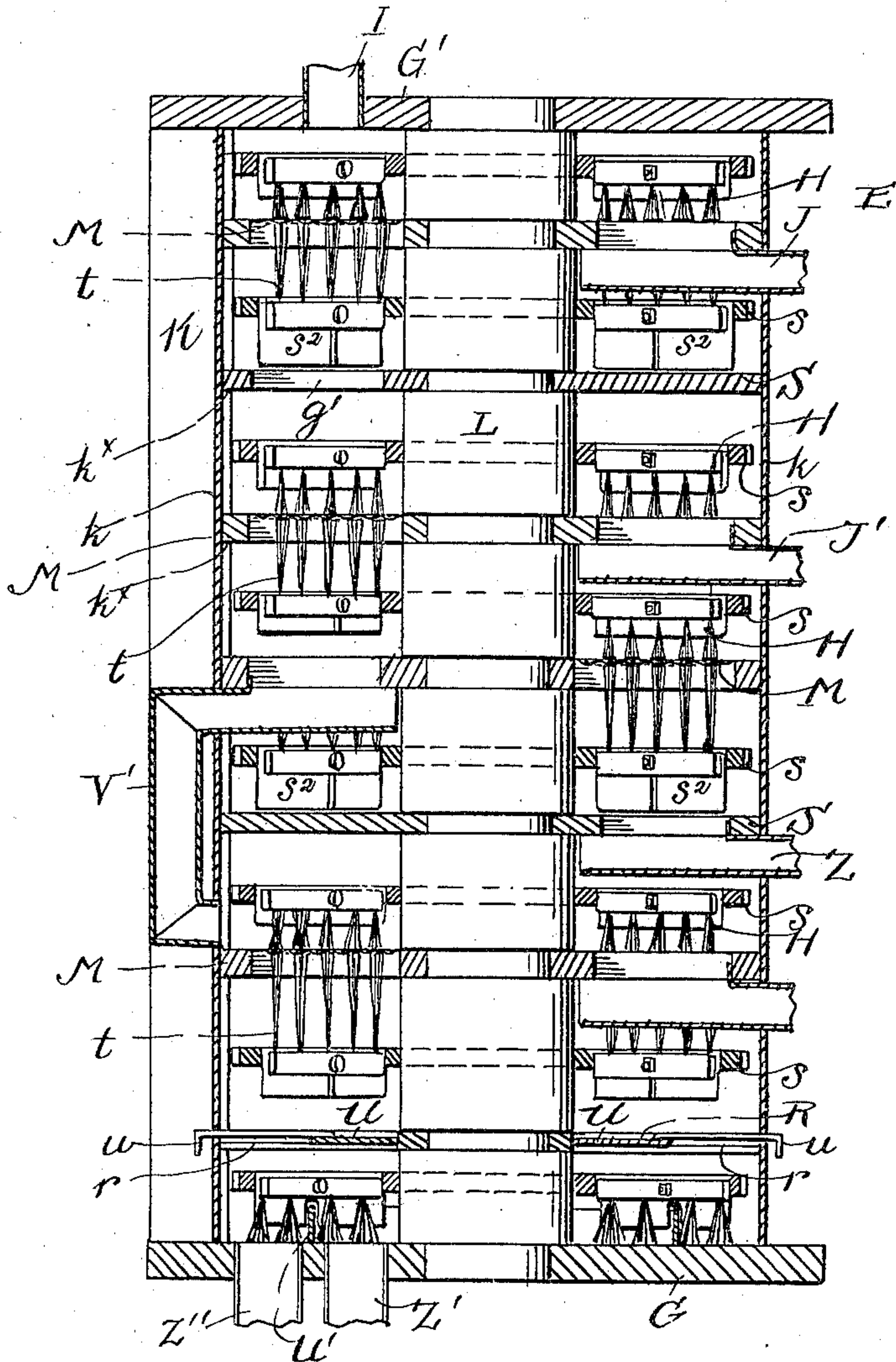
C. L. WHITE.  
FLOUR BOLTING MACHINE.

(No Model.)

(Application filed Apr. 2, 1900.)

6 Sheets—Sheet 6

FIG. 10.



ATTEST:

*George M. Anderson*  
*Wells & McCarthy*

INVENTOR

*Charles L. White,*

*By E. W. Anderson*

*his Atty.*



# UNITED STATES PATENT OFFICE.

CHARLEY L. WHITE, OF DAYTON, WASHINGTON.

## FLOUR-BOLTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,248, dated April 16, 1901.

Application filed April 2, 1900. Serial No. 11,169. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLEY L. WHITE, a citizen of the United States, residing at Dayton, in the county of Columbia and State of Washington, have invented certain new and useful Improvements in Flour-Bolting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to bolting and dressing machines for treating crushed or ground grain, in which a series of sieves are arranged in connection with brushes, carriers, and gearing around a vertical trunk; and the invention consists in the novel construction and combinations of parts, all as hereinafter set forth.

The object of the invention is to provide a machine of compact nature and simple construction which is adapted to operate upon different classes of stock and is arranged to return the material passing over the sieves to the proper rolls for further reduction, while separating and retaining the flour for proper delivery.

In the accompanying drawings, Figure 1 is a side elevation of my machine. Fig. 2 is a vertical section of the same with parts in elevation, the cylinder E being shown thrown to one side by the crank C. Fig. 3 is a section on the line 3 3, Fig. 2. Fig. 4 is a section on the line 4 4, Fig. 2. Fig. 5 is a section on the line 5 5, Fig. 2. Fig. 6 is a detail view of one of the sector-shaped sections *m* of the screens M. Fig. 7 is a detail view of spout Z'. Fig. 8 is a detail view illustrating the attachment of the brushes *t* to the spokes *s*'. Fig. 9 is a central vertical section of my machine partially assembled to illustrate the manner of supporting the screens and gathering-boards. Fig. 10 is a central longitudinal section through the cylinder E, partly diagrammatic.

In the accompanying drawings, illustrating this invention, the letter A designates a strong frame having at its base a cross-bar or bearing for the vertical journal of the driving-pulley B, this journal being provided at its upper end with a crank-arm C, carrying upon a spindle or pin *a* at its outer end a small

sprocket-pinion *c*, which is connected to a sprocket-wheel *b* at the lower end of the gear-shaft D, which extends vertically upward and is mounted in bearings at the marginal portion of the cylinder E. The upper end of the pin *a* of the crank-arm engages a bearing *a'* of the cylinder, said bearing being usually a small casting secured to the central portion of its bottom or at the crossing of the intersecting supporting-bars F F, to which is secured the lower head G of the cylinder. The projecting ends *f f* of the cross-bars are provided with bearings to which are connected the lower coil ends *h''* of the adjustable swing-rods H, the upper coil ends *h''* of which are connected to the adjustable nuts or bearings *h*, which engage the upper bars of the framework, which is usually of rectangular form or adapted to sustain within its limits the cylinder E, in which the crushed or ground grain is operated upon. There are usually four of the suspending-rods H, one at each side of the frame, and when the drive-pulley is operated a rotary swinging motion having a tremulous or elastic vibratory character is imparted to the cylinder, which, however, does not cause the cylinder to turn upon its axis.

The cylinder E as usually constructed consists of the lower head G, the upper head G', the vertical rib-bars K, usually six in number, secured at their upper and lower ends to the heads, the wall-sections *k*, the central journal-post L, and the circular sieves or screens M, made in sections and engaging bearing grooves or notches *K<sup>x</sup>* in the ribs K and annular grooves or notches *l* in the central post. Each circular screen consists of sector-shaped sections *m*, usually three in number, connected by tongue-and-groove joints of their framing in such manner that they are removable. The central post L is secured to the lower head G, as are the vertical rib-bars K, these being arranged on each side of each shaft at equal distances apart around the cylinder. To these rib-bars are secured the arc-sections *k* of the wall, said sections having flanges *k'* for the passage of the securing-screws *k''*, which may be removed when it is required to take off a section of the wall for purposes connected with the adjustment or renovation of the in-



terior mechanism. These screens are arranged one above another, and the bolting-cloth of the upper sieve or sieves is of coarser mesh than that of those below, which are designed to allow nothing but flour to pass through to the lower gathering boards or shelves S. Above each sieve is provided a circular gear carrying gathering-blades  $s^2$ , and sometimes brushes are connected to said blades and made adjustable in slots thereof, so that they can be brought down as low as is requisite.

The gathering shelves or boards are circular and extend around the journal-post below the first, third, and fourth circular sieves. Each gathering-board is supported in the same manner as the screens M. Circular gears  $s$ , having hubs which turn on bearings of the central post, are provided, each gear-wheel engaging double-flanged small pinions on the gear-shafts D. Such a gear-wheel is provided above each screen and gathering-board, and its arms extend outward obliquely or from its hub in tangential direction to the rim portion and project downward nearly to the level of the screen or gathering-board in order to cause the material to be distributed equally over the screen or gathering-board above which it is located.

Above each circular sieve is a set of horizontal brushes P P, which are carried by the arms of a circular gear. The brushes are designed to be adjustable by the miller in accordance with the character of the material being worked, and they may be omitted over some of the screens when advisable, the brushes being readily detached from the gears. The blade-spokes  $s'$  of the circular gear are preferably made tangential, inclining forward in the direction of movement of said gear in order that the brushes attached thereto shall have a like tangential position, whereby the material on the screens is caused to move toward the center of the machine for better distribution.

Beneath each circular sieve the circular gear is provided with one or more brushes  $t$ , which project upward in order to touch the under side of the sieve and cause its meshes to be kept clear. This brush is also made adjustable by means of vertical slots of the blade-arms of the gear and suitable attachment-bolts.

The operation is as follows: The crushed or ground grain coming from the first break-roll or mill is carried through the spout I at the top of the cylinder to the first screen and is carried around this screen by the blades of the revolving gear, the finer particles passing through to the gathering-board below and the coarser particles passing by the spout J to another roll. The material which passes through this sieve to the gathering-board is carried around by the blades of a revolving gear to an opening  $g'$  in said board, through which it drops to the second screen, around which it is carried by the blades of the geared

distributor, which separates the finer particles which pass through to the third screen from the coarser particles which pass off by the spout J' to another roll. The third screen delivers through its meshes to a gathering-board which discharges the first or No. 1 grade of flour through spout Z, and the particles passing over this screen are delivered by the return-spout V' to the fourth screen. The material passing over the fourth screen is carried to another roll, and that which passes through its meshes falls upon a circular cut-off board R, whereby it is divided in the manner hereinafter described, so that a part of the material is caused to fall through upon a gathering-board below said cut-off board and pass out through spout Z' to flour of grade No. 1, and the other part is caused to fall upon the same gathering-board and pass out through the spout Z'' to flour of the second grade. In order to accomplish this division, the circular cut-off board R is subdivided into sector-form compartments R', each of which is provided with an opening  $r$  in said board, extending from the central post outward. These openings or passages are bounded by slideways to receive the radially-adjustable slides U, having operating-rods  $u$ . When one of these slides is pulled outward, it will cover the outer part of that portion of the gathering-board which is below it and cause the material in the compartment to fall upon the more central portion of said gathering-board, which is separated from the outer portion by the circular wall or flange U', which projects upward from the gathering-board to which it is attached. When, however, a slide or valve is pushed inward, the material will be discharged on that portion of the gathering-board which is outside the circular wall cut-off.

I do not desire to restrict the construction to any particular number of screens or gathering-boards, and the cut-off arrangement may be employed under any one of the screens when it may be required on account of the character of the material.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a bolting-machine, the combination of a cylinder-case having an inlet-passage for the reduced grain and means for imparting a vibratory movement thereto, the series of superposed screens in said case, the gathering-boards between and below said screens, said screens having eccentric discharge-pockets therein, a portion of said pockets communicating with a return-pipe to the screen or screens next below, a portion of said gathering-boards having a delivery passage or passages to the screen next below, a portion of such boards having an eccentric discharge pocket or pockets therein, and the remaining or bottom board having an outlet-passage, together with revoluble distributing blades and brushes for action with said boards and



screens, to gather the reduced grain into the pockets and passages of said screens and boards, substantially as specified.

2. In a bolting-machine, the combination of  
5 a cylinder-case having an inlet-passage for the reduced grain and means for imparting a vibratory movement thereto, the series of superposed screens in said case, the gathering-boards between and below said screens,  
10 said screens having eccentric discharge-pockets therein, one of said pockets communicating with a return-pipe to the screen next below, one of said gathering-boards having a delivery-opening to the screen next below,  
15 another of said boards having a discharge-pocket therein, and the bottom of such board having annular compartments provided with outlet-passages, means for delivering different qualities of flour to such compartments,  
20 together with revoluble distributing blades and brushes for action with said boards and screens to gather the reduced grain into the pockets and passages of said screens and boards, substantially as specified.

25 3. In a bolting-machine, the combination of a cylinder-case having an inlet-passage for the reduced grain, the series of superposed screens in said case, the gathering-boards between and below such screens, the distributing-blades working over said boards, said  
30 screens having eccentric discharge-pockets therein, a portion of said pockets communicating with a return-pipe to the screen or screens, next below, a portion of said gathering-boards having an eccentric delivery opening or openings to the screen or screens next below, a portion of such boards having  
35 an eccentric discharge pocket or pockets therein, a cut-off board between the lowermost screen and remaining and lowermost gathering-board, said cut-off board having radial compartments provided with radial openings, and slide-valves working in said  
40 openings, said lowermost board having annular compartments, provided with discharge-passages, substantially as specified.

4. In a bolting-machine, the combination of a cylinder-case having an inlet-passage for the reduced grain, and a central post, the  
50 series of superposed screens in said case, the gathering-boards between and below said screens, the revoluble distributing-blades working over said boards and having a tangential relation to said post, the revoluble  
55 brushes working upon a portion of said screens, and having a tangential relation to said post, said screens having eccentric discharge-pockets therein, a portion of said pockets communicating with a return-pipe to the screen next below, a portion of said gathering-boards having an eccentric delivery  
60 opening or openings to the screen next below, and a portion of said boards having an eccentric discharge pocket or pockets therein, and the remaining or bottom of such boards having an outlet-passage, substantially as specified.

5. In a bolting-machine, the combination of a cylinder-case having a central post provided with annular supporting grooves or  
70 notches, circumferential frame-bars connecting top and bottom of said case and having supporting grooves or notches, said case having an inlet-passage for the reduced grain, a series of superposed, sectional, removable  
75 screens in said case engaging and supported by the grooves or notches of said post and bars, gathering-boards between and below said screens and engaging and supported by the grooves or notches of said post and bars,  
80 gear-wheels between said screens and gathering-boards, and carrying distributing blades and brushes, shafts carried by said case and having flanged supporting-pinions engaging and supporting said gear-wheels, and means  
85 for separating and delivering the different grades of reduced grain from said screens and boards, substantially as specified.

6. In a bolting-machine, the combination of a cylinder-case having an inlet-passage for the  
90 reduced grain, a series of superposed screens in said case, gathering-boards between and below said screens, gear-wheels between said screens and gathering-boards and carrying distributing blades or brushes, shafts carried  
95 by said case and having flanged supporting-pinions engaging and supporting said gear-wheels, and means for separating and delivering the different grades of reduced grain from said screens and boards, substantially as  
100 specified.

7. In a bolting-machine, the combination of a cylinder-case having an inlet-passage for the reduced grain, of a series of superposed  
105 screens in said case, gathering-boards between and below said screens, revoluble distributing blades and brushes for action with said screens and boards, a cut-off board between the lowermost screen and gathering-board, and having radial compartments provided  
110 with radial discharge-openings having slide cut-off valves, said lowermost board having annular compartments provided with discharge-passages, substantially as specified.

8. In a bolting-machine, the combination of  
115 a cylinder-case having an inlet-passage for the reduced grain, of a series of superposed screens in said case, gathering-boards between and below said screens, revoluble distributing blades and brushes for action with said  
120 screens and boards, a cut-off board between the lowermost screen and gathering-board, and having radial compartments provided with radial discharge-openings, said lowermost board having annular compartments  
125 provided with discharge-passages, and means for regulating the discharge from the openings of said cut-off board alternatively into the annular compartments of said gathering-board, substantially as specified.  
130

9. In a bolting-machine, the combination with the cylinder-case, and means for imparting a vibratory rotary movement to said case, of superposed screens and gathering-boards



in said case, said screens having eccentric openings therethrough for the passage of the finer reduced grain, rotatory gear-wheels located between said screens and boards, means  
5 for rotating said gear-wheels, and distributing and gathering brushes and blades carried by said gear-wheels substantially as specified.

10 10. In a bolting-machine, the combination with the cylinder-case having means for imparting a vibratory rotary movement thereto, of alternating superposed circular screens and gathering-boards in said case, said screens having eccentric openings therethrough for the passage of the coarser reduced grain, and  
15 said boards having openings therethrough for

the passage of the finer reduced grain, rotatory gear-wheels located between said screens and boards, and carrying tangential adjustable distributing and gathering brushes acting upon both upper and lower surfaces of  
20 said screens, means for rotating said gear-wheels, and adjustable gathering-blades for said boards, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLEY L. WHITE.

Witnesses:

GRANT HAMILTON,  
WM. A. COX.



It is hereby certified that the name of the patentee in Letters Patent No. 672,248, granted April 16, 1901, for an improvement in "Flour-Bolting Machines," was erroneously printed "Charley L. White," whereas said name should have been printed *Charles L. White*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 14th day of May, A. D., 1901.

[SEAL.]

F. L. CAMPBELL,  
*Assistant Secretary of the Interior.*

Countersigned:

F. I. ALLEN,  
*Commissioner of Patents.*