

(No Model.)

H. A. GRAETER.

FLOUR BOLT.

No. 273,836.

Patented Mar. 13, 1883.

Fig 1

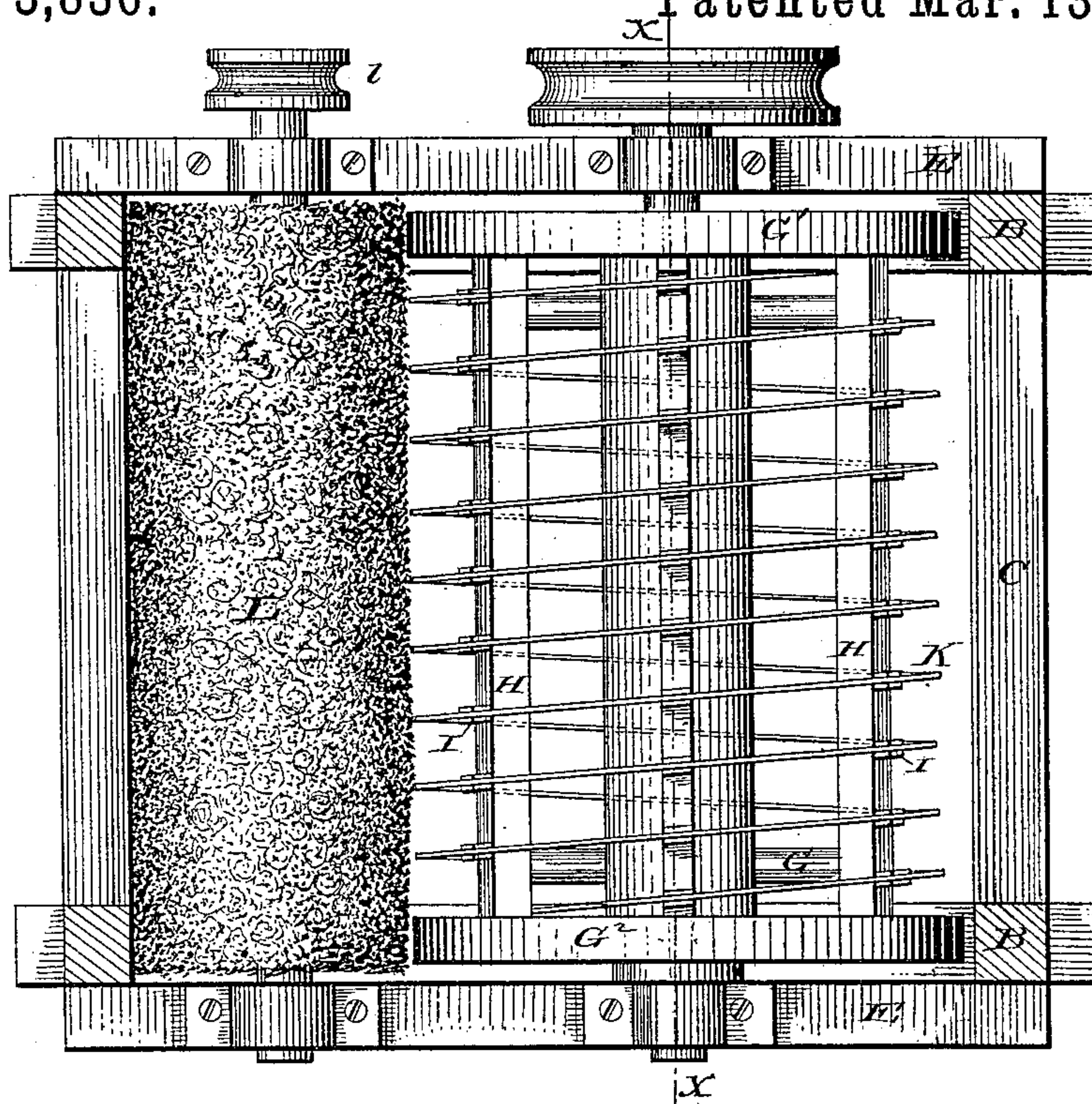
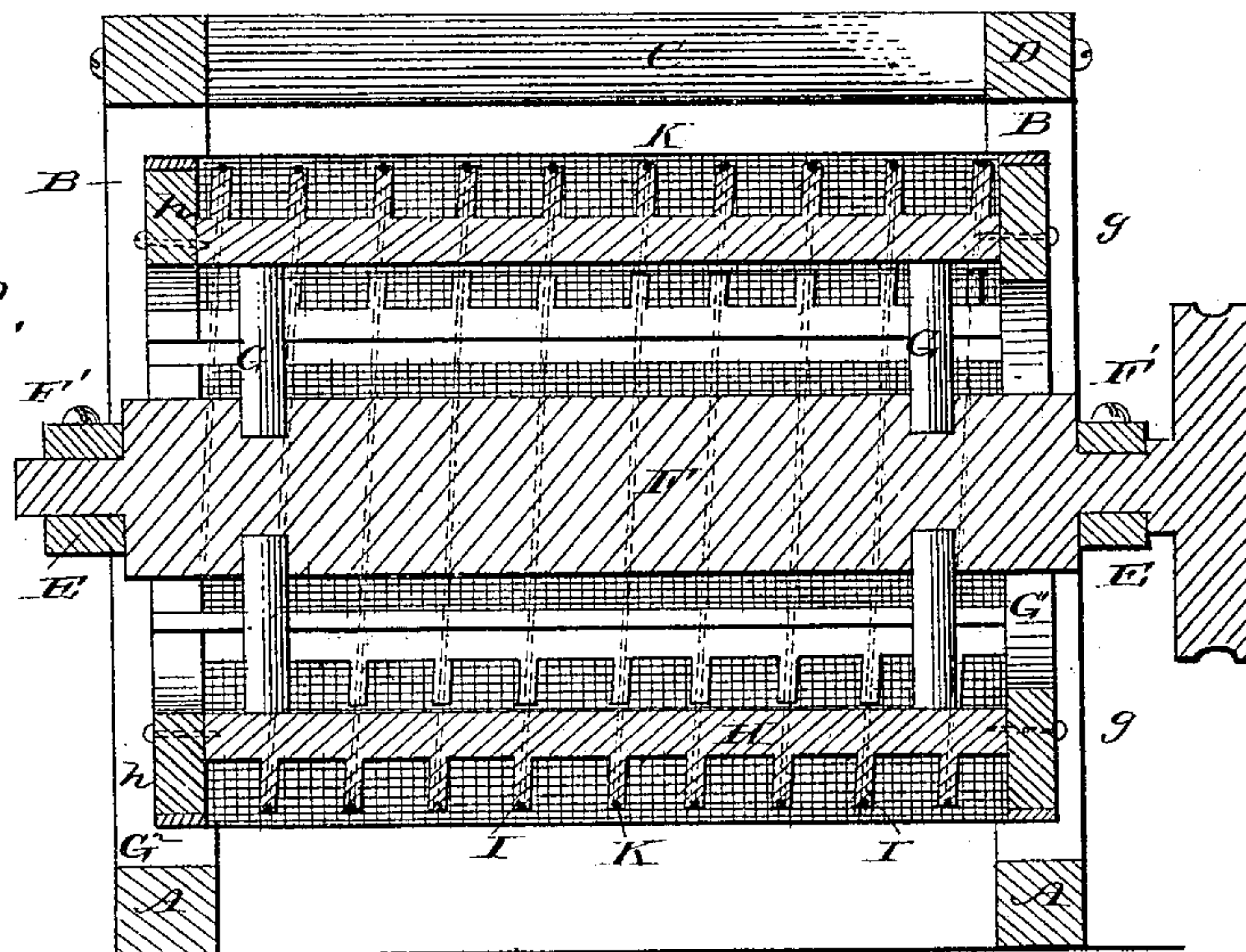
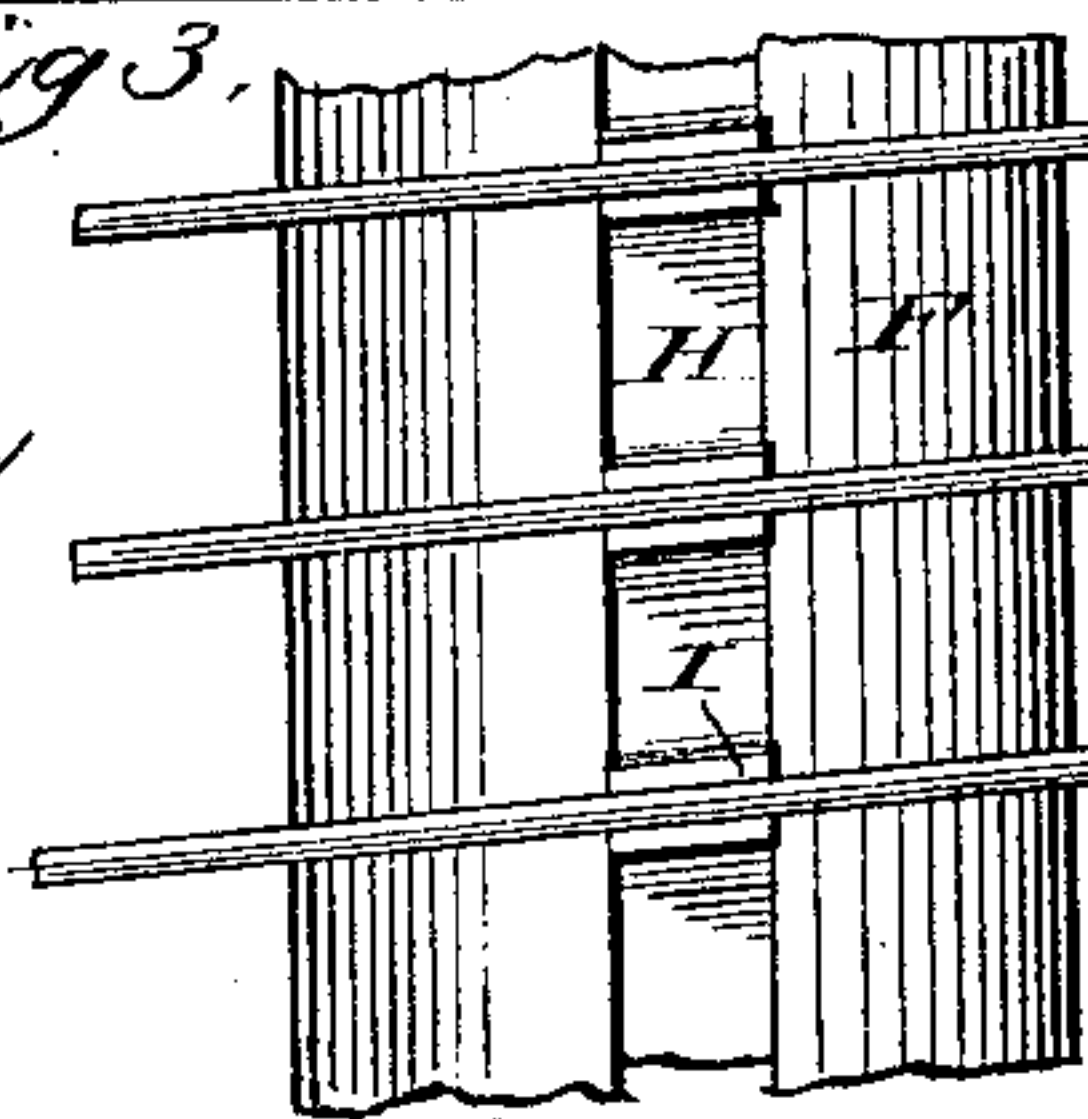


Fig. 2.



Witnesses: *Fig 3.*

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UNITED STATES PATENT OFFICE.

HENREY A. GRAETER, OF WOOSTER, OHIO.

FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 273,836, dated March 13, 1883.

Application filed March 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENREY A. GRAETER, a citizen of the United States, residing at Wooster, in the county of Wayne and State of Ohio, 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.

Figure 1 is a top or plan view. Fig. 2 is a longitudinal section taken on line *xx*, Fig. 1. Fig. 3 is a detached view, enlarged, of a portion of a bolt-frame embodying the invention.

In the drawings, A A are the sills; B B, the posts; C D, the top cross-pieces, and E E the intermediate girts, all constituting a frame.

F is the reel-shaft, having its bearings in the girts E E or in boxes F' F', supported in the girts.

G G are radial arms projecting from the reel-shaft.

H H are longitudinal ribs, supported upon the outer ends of arms G G.

I I are wire-supporting flights projecting from the reel-bars H H.

G' is the head of the reel, supported in a position concentric to the reel-shaft by means of screws *g*, extending through the head and into the ends of reel-bars H.

G² is a hoop of substantially the same diameter as the reel-head, and connected and supported upon the opposite ends of the reel-bars H by intervening blocks, *h*.

K is a wire fastened at one end at or near the reel-head G', and passing around the reel in helical form, being supported at frequent intervals upon the flights I, which are, by preference, grooved upon their outer surfaces to receive the wire. These flights are arranged not on lines parallel with the reel-head and the hoop G², but on lines parallel with the helical wire K, for a purpose which will soon be explained.

L is a rotary brush, mounted parallel to the axis of the reel in suitable bearings on girts E, the diameter of the brush being such as to bring the ends of the bristles in contact with the bolting-cloth, which is stretched over the outer surface of the helical wire, and the brush is driven, by preference, by a belt which connects a band-pulley, *l*, attached to the brush, with the shaft of the reel.

My construction of reel possesses decided

advantages over those heretofore built for use in combination with a brush applied to its outer surface, it being readily understood that neither the radial bars G nor the flights I will shrink lengthwise in seasoning, nor will they expand lengthwise when exposed to dampness. Hence the reel will always preserve its circular form, so as to insure the satisfactory contact between the bolt-cloth and the brush L.

In operation the flights serve to advance the flour from the head to the tail of the reel in substantially the same manner as is done by the flights on a conveyer. Therefore it will be readily understood that by increasing or diminishing the distance between the coils of wire at any part of the reel the number of flights at that part of the reel will be correspondingly increased or diminished, and hence a corresponding change will be effected in the rate at which the flour is advanced toward the tail of the reel, it being obvious that the greater the number of flights the more rapidly the flour will be advanced, and vice versa.

It is well known to millers that it is desirable to regulate the depth of material upon any specified portion of the bolt-cloth, and this can be accomplished by means of these flights. Thus, if it be desired that with a given rate at which the meal is fed to the head of the reel it is also desired to provide for a thick layer throughout the entire length of the reel—that is, that the bolt should be overloaded throughout its entire length—this can be accomplished by employing fewer flights than would be employed to insure a thin layer of flour upon the middle or lower portion of the bolt, because with a smaller number of flights the material will not be advanced toward the tail of the reel as rapidly as it would be with an increased number of flights. The rate at which the flour is advanced toward the tail of the bolt can also be regulated by increasing or diminishing the width of the flights or by changing their angle, it being apparent that the more closely they approach to a plane which cuts the reel-shaft at a right angle the slower will be the advance of the flour in proportion to the number of flights.

I am aware that a grain-separator has been constructed with a foraminous sheet-metal cylinder supported upon the edge of a spirally-arranged continuous strip of metal, which in

turn is supported by arms or spindles arranged radially to the central shaft. Hence I do not claim such construction; but I believe myself to be the first to support a cylindrical bolting-
5 surface upon a spiral wire, which in turn is supported upon a series of thin flat arms arranged spirally relatively to the central shaft, and mounted upon interposed longitudinal ribs, whereby the wire-supporting arms con-
10 stitute flights which act to advance the flour from the head toward the tail of the reel as it revolves.

It is evident that my reel possesses advantages over the prior constructions, because, for
15 one thing, of its greater ease of manufacture,

as it can be made by the use of tools which are employed by every millwright.

What I claim is—

In a flour-bolt, the combination of the shaft, the radial arms G G, longitudinal ribs H H, 20 spirally-arranged flights supported on the longitudinal ribs, and the spiral wire, substantially as set forth.

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

HENREY A. GRAETER.

Witnesses:

J. VERNON,
L. M. SEA.