

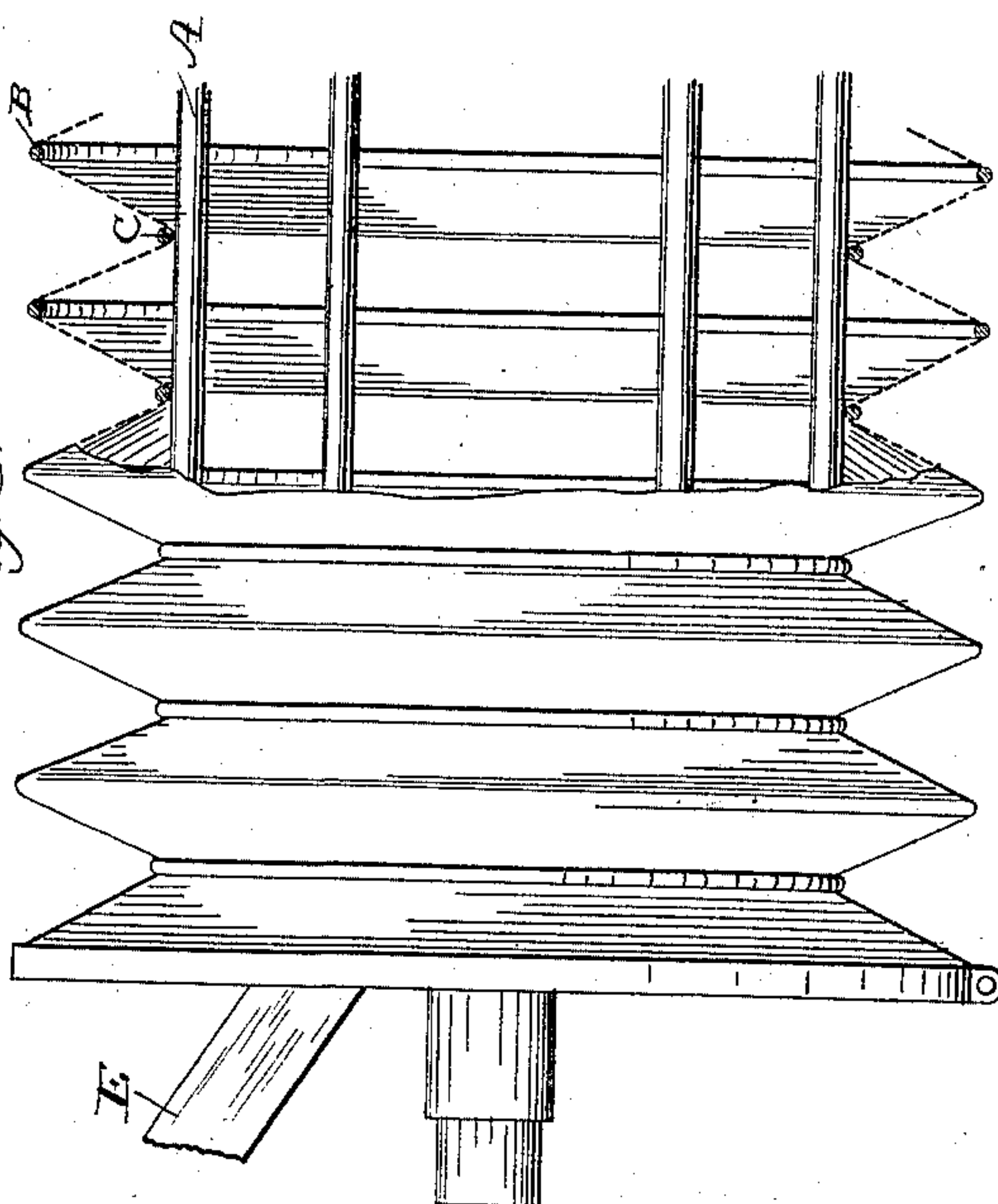
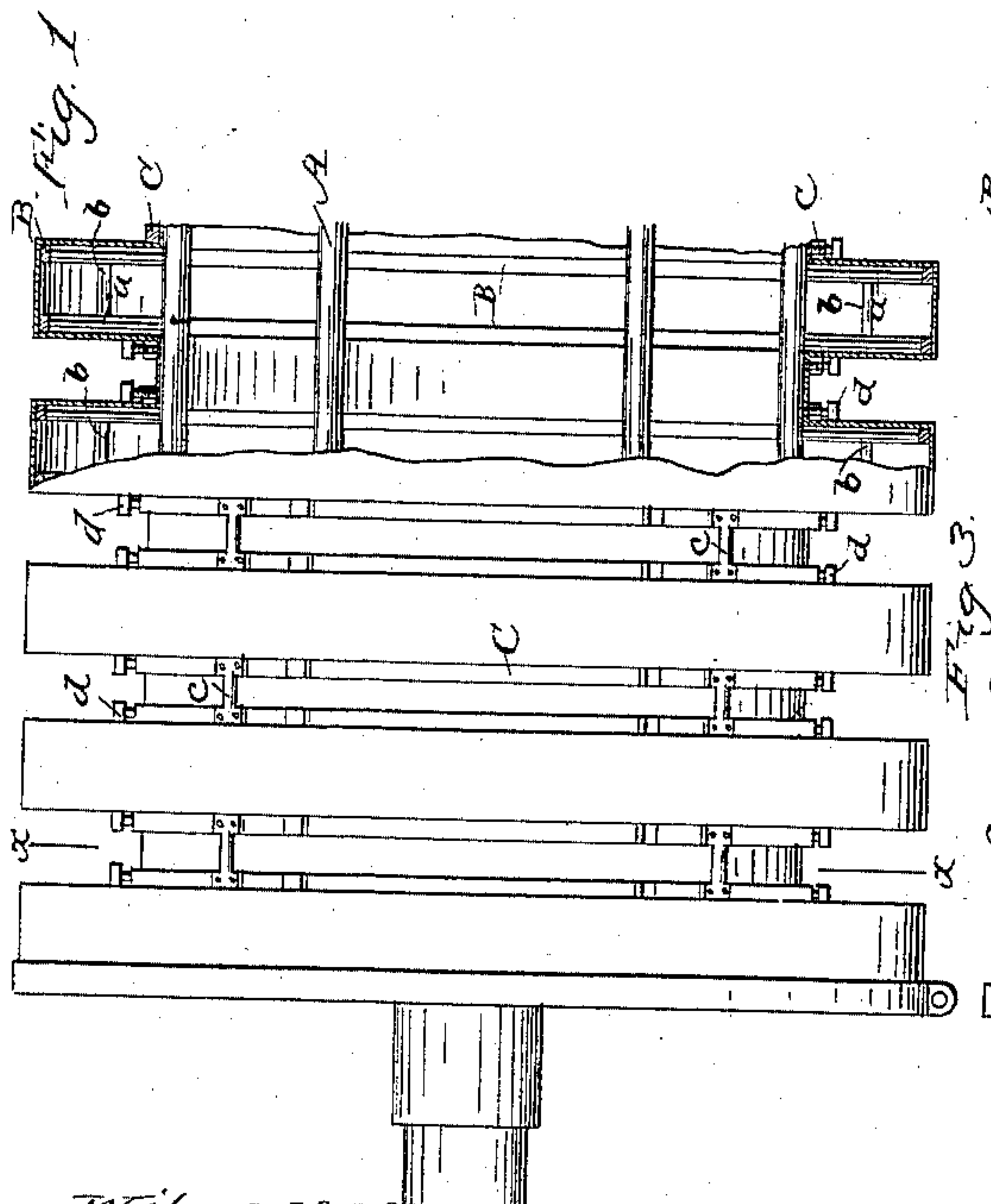
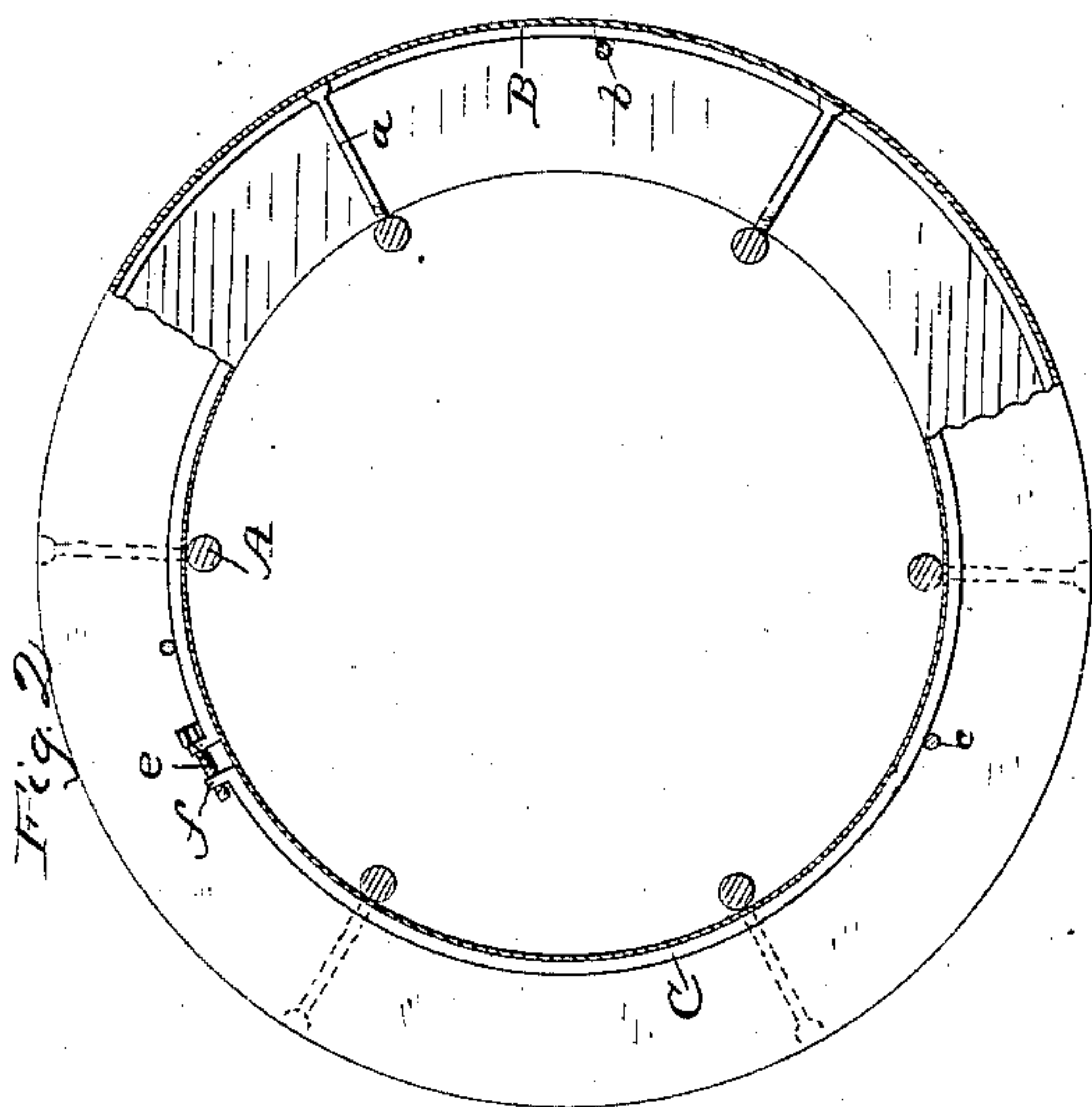
(No Model.)

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

FLOUR BOLT.

No. 312,914.

Patented Feb. 24, 1885.



Witnesses

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# UNITED STATES PATENT OFFICE.

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

## FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 312,914, dated February 24, 1885.

Application filed May 17, 1883. (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.

Figure 1 is an elevation, partly in section, of a reel containing our invention. Fig. 2 is a transverse section on the line *x x*, Fig. 1. Fig. 3 is an elevation, partly in section, showing a modification of the invention.

Referring to Figs. 1 and 2, *A A* are a series of supporting-bars arranged substantially in a circle, and having their ends supported, by preference, in the reel-heads.

*B B* are the outer cloth-supporting rings, arranged in pairs, and supported upon the ends of rods *a a*, projecting outwardly and radially from the bars *A A*. The two of each of the pairs of outer supporting-rings are connected by short cross supporting or spacing bars *b b*, attached to the inner faces of the rings by rivets or otherwise.

*C C* are the inner cloth-supporting rings, also arranged in pairs, which are connected by short cross-bars or spacing-bars *c c* and supported by the longitudinal bars *A*, to which they are attached by means of screws *d*. The cloth is supported upon the outer surface of the pairs of outer supporting-rings, *B B*, and upon the inner surface of the inner pairs of rings, *C C*, thus forming chambers the side walls of which are parallel, and which extend continuously around the reel.

In order to stretch the cloth to secure the desired tension, I make the inner cloth-rings, *C*, contractible and support them detachably upon the bars *A*, so that the cloth may readily pass under them. When preferred, the set-screws *d*, passing through inner cloth-rings, *C C*, and the bolting-cloth, may be dispensed with, thus avoiding the necessity of perforating the cloth, in which case the rings may each be contracted by means of a right and left hand screw-bolt, *e*, which passes through outwardly-projecting lips or lugs *f f* at the ends of the rings, as clearly indicated in Fig. 2; or the rings may be made in segments

and the cloth tightened by means of set-screws *d d*. In this construction we prefer to make the cloth of such pattern as shall insure that it may be properly applied to the reel and stretched thereon without wrinkles. We have shown the reel as situated horizontally; but in practice we prefer to incline it somewhat to facilitate the feeding of the meal from the head to the tail of the machine.

*E* represents a feed-spout through which the material to be treated is fed to the center of the reel, where it may be acted upon by any of the appliances which are commonly used in the interior of bolting-reels.

In Fig. 3 we have shown a construction in which the cloth-chambers have their side walls converging outwardly. In this case the inner and outer rings are arranged alternately, the cloth passing under and over the rings in a zigzag manner, this arrangement permitting a continuous cloth to be used from end to end of the reel. In this figure we have shown the inner contractible ring consisting simply of a cord or wire, which may be taken up or shortened at pleasure.

In the construction shown in Fig. 3 the standards *a a* are situated in the center transversely of the cloth-chambers, and thus do not tend to bank up the material and obstruct the bolting action.

The devices shown in Patent 233,411 for securing the bolting-cloth upon the reel may also be advantageously used under some circumstances, especially for stretching the cloth lengthwise upon the bolt. Under other circumstances we may simply stretch the cloth by hand and tack it to the heads and other portions of the reel. In both constructions shown it will be seen that the cloth is supported partly by peripheral rings which are mounted upon radial standards and in part by inner rings which are arranged outside the bolting-cloth.

While we have shown the cloth supported upon longitudinal bars, whereby the reel is adapted to receive either a disintegrator or revolving beaters, or both, we do not wish to be limited to such construction, it being apparent that the radially-supporting rods or standards *a a* might be supported from a central shaft within the reel, particularly in the



construction shown in Fig. 3, in which case such zigzag arrangement of the cloth would greatly increase the bolting-surface of an ordinary revolving reel.

5 Although we have shown and described the best means now known to us for carrying out our invention, yet we do not wish to be limited thereby, as many other obvious modifications might be made without departing  
10 from its spirit. Of course, when desired, any form of disintegrator or beaters may be used within the bolting-cloth of this reel. In both these constructions it will be noticed that the cloth is supported upon two series of rings  
15 alternately arranged, one set of rings being of greater diameter than the other set. Those of the larger diameter we prefer to call "peripheral rings," the other smaller set being usually called the "inner rings."

20 Although we have shown and described these reels as being circular in cross-section, yet we do not wish to be limited thereby, it being apparent that they might be made many-sided, in which case it would be preferable to use as many of the supporting-rods  
25 *a a* as there are sides to the reel; and in general it would be desirable to use an equal number of the supporting-bars *A A*; but this is not indispensable, because one-half the  
30 number might be used, in which case, however, the supporting-rods would not be radial to the axis of the reel. Hence we prefer the other described construction.

We do not in this application claim the  
35 specific features of construction shown in Fig. 3, but reserve to ourselves the right to claim and patent such specific construction in another divisional application to be hereinafter filed by us. Nor do we claim, broadly, in  
40 this application a rotary bolt or centrifugal reel having the bolting-cloth arranged in corrugated form around the axis of the reel and supports for such bolting-cloth, as we have made such the subject-matter of another ap-  
45 plication, No. 89,026, filed March 21, 1883.

What we claim is—

1. In a flour-bolt, the combination of the cloth, longitudinal bars, peripheral rings supported from said longitudinal bars, and alter-  
50 nately arranged inner rings supported by the longitudinal bars and situated upon the outside of the bolt-cloth, substantially as set forth.

2. In a flour-bolt, the combination of the  
55 reel-heads, longitudinal supporting-bars arranged concentrically with the axis of the reel, a series of peripheral rings, standards

connecting the bars and rings, a series of inner rings supported upon the horizontal bars, and the cloth which passes outside the pe-  
60 ripheral rings and inside the inner rings, substantially as set forth.

3. In a flour-bolting reel, the combination of the reel-heads through one of which the meal is fed into the interior of the reel, the  
65 bolting-cloth, a series of inner cloth-supporting rings, and a series of peripheral cloth-supporting rings, substantially as set forth.

4. In a flour-bolt, the combination of the cloth, a series of peripheral rings, and inner  
70 adjustable rings situated upon the outside of the cloth, substantially as set forth.

5. In a flour-bolt, the combination of the cloth, a series of peripheral rings, inner rings, C, and screws engaging with the ends of said  
75 inner rings to regulate their length and adjust the tension upon the bolt-cloth, substantially as set forth.

6. In a flour-bolt, the combination of the longitudinal bars, peripheral rings arranged  
80 in pairs and supported from the longitudinal bars, inner rings arranged in pairs and supported by the longitudinal bars, and the cloth supported upon said rings and arranged upon the outside of the pairs of peripheral rings  
85 and inside of the pairs of inner rings, to form a series of circumferential chambers, substantially as set forth.

7. In a flour-bolt, the combination of the cloth, a series of peripheral rings, radial  
90 supporting-standards, and spacing-bars interposed between two adjacent rings, substantially as set forth.

8. In a flour-bolt, the combination of the cloth, the longitudinal bars, peripheral rings,  
95 standards upon which said rings are supported, inner rings arranged in pairs upon the outside of the bolting-cloth, and spacing-bars between the adjacent inner rings, substantially as set forth.

9. In a flour-bolt, the combination of the cloth, a series of peripheral rings and inter-  
posed spacing-bars arranged inside the bolt-cloth, a series of inner rings, and interposed  
100 spacing-bars arranged outside of the bolting-cloth, substantially as set forth.

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

GEORGE T. SMITH.

WILLIAM F. COCHRANE.

Witnesses:

C. F. KNAPP,

GEO. S. BENNETT.