

(No Model.)

2 Sheets—Sheet 1.

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

No. 374,501.

Patented Dec. 6, 1887.



Fig. 2

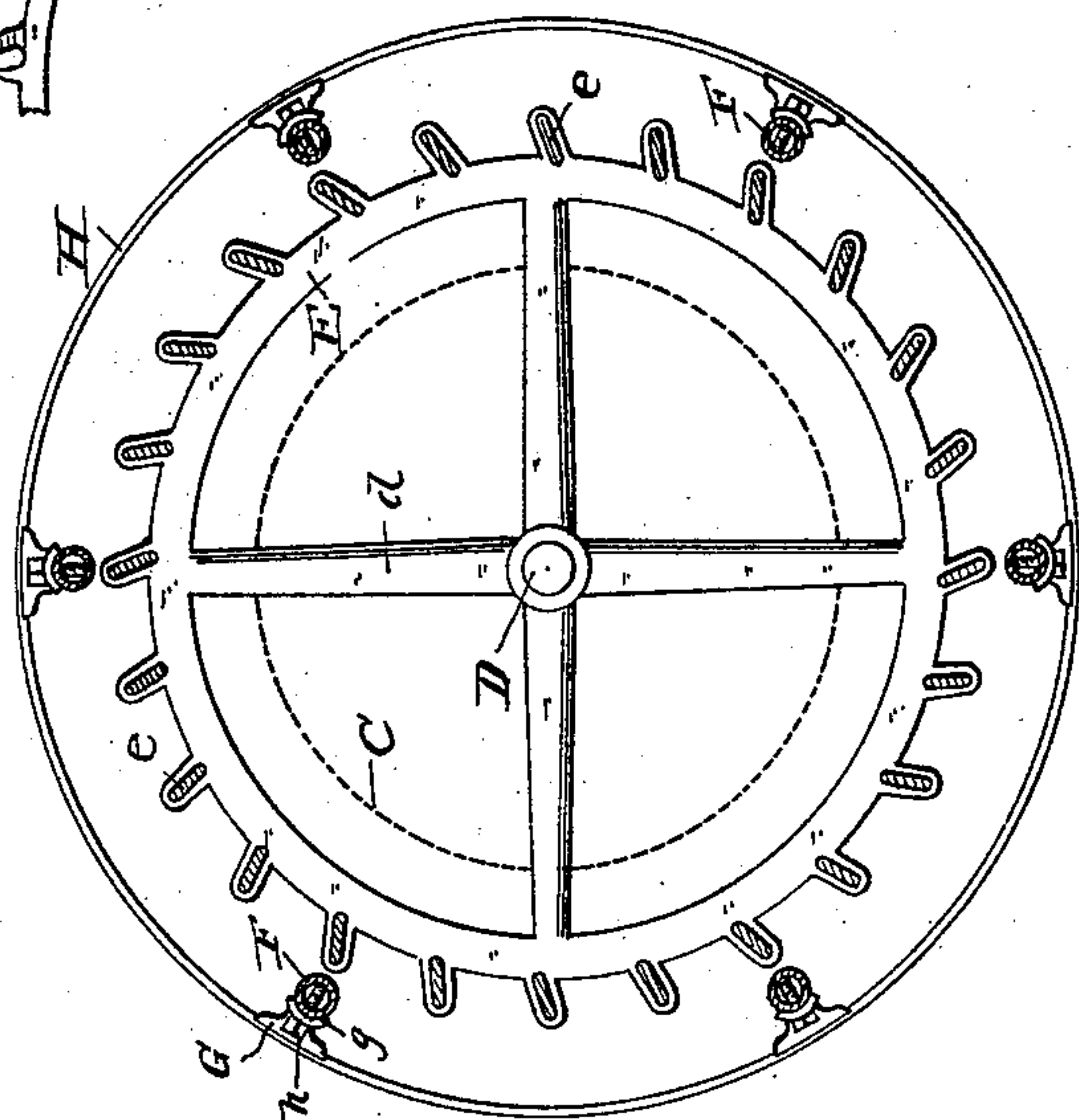


Fig. 5

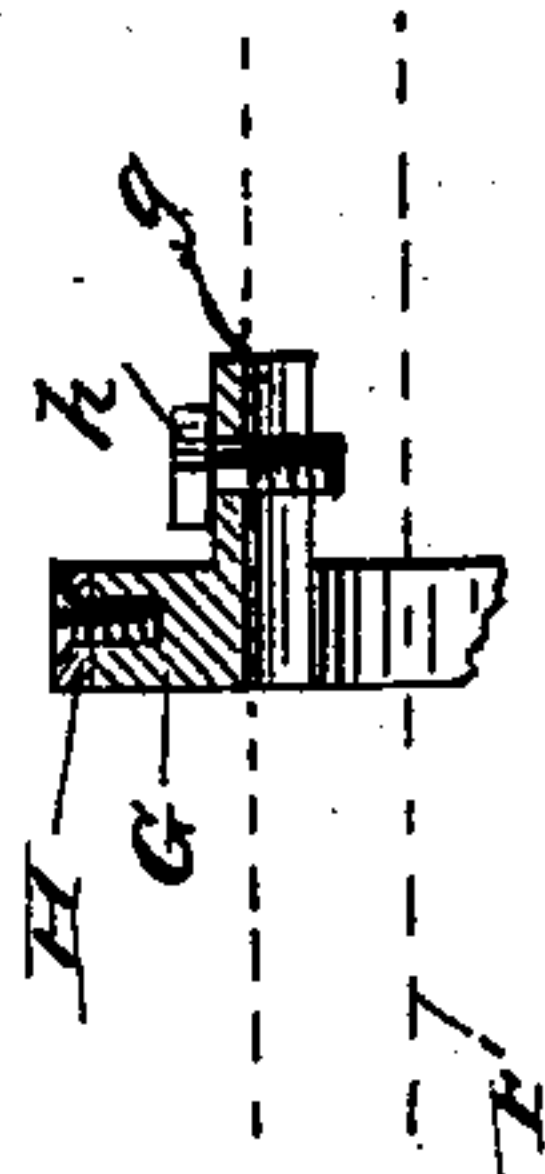
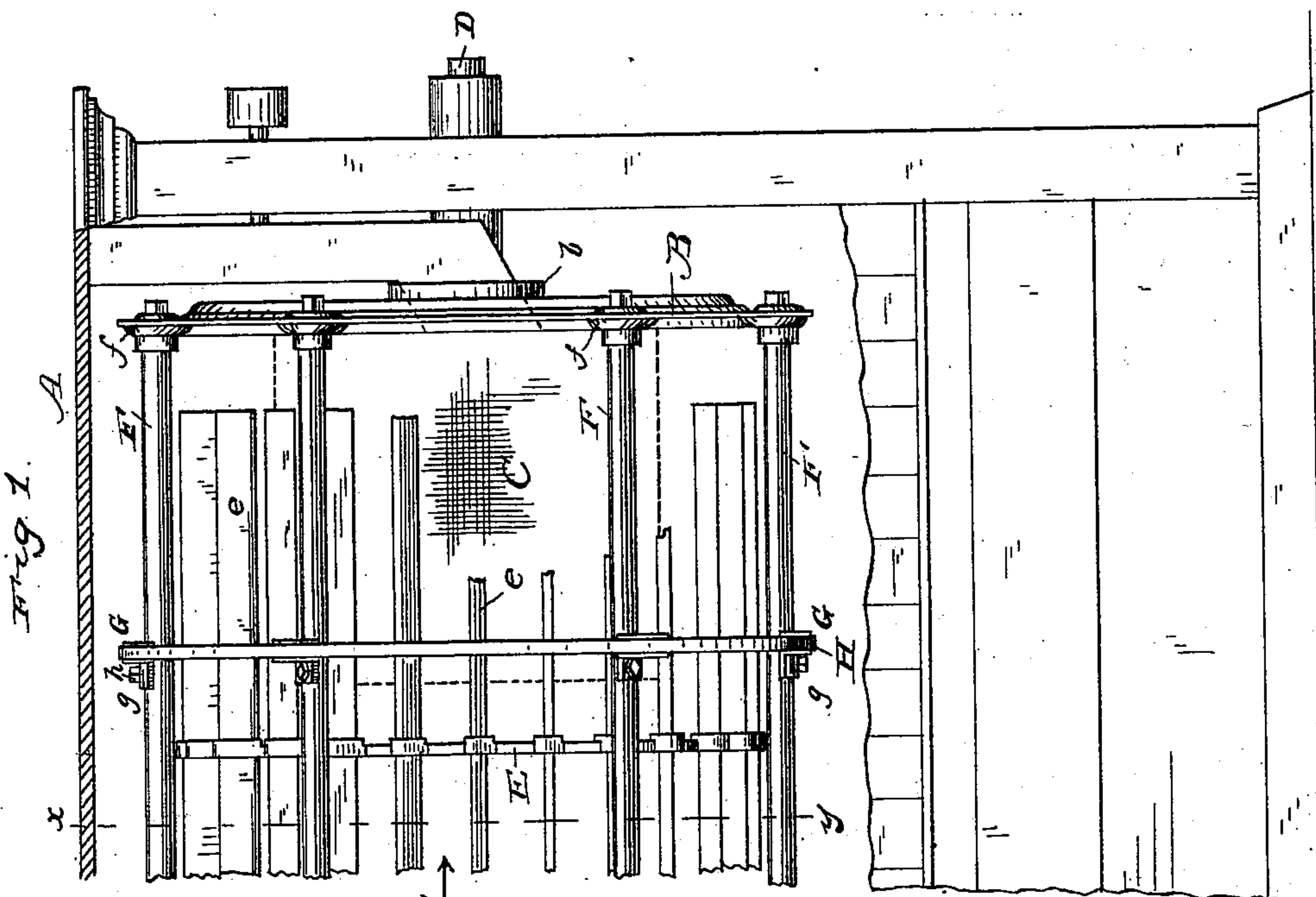
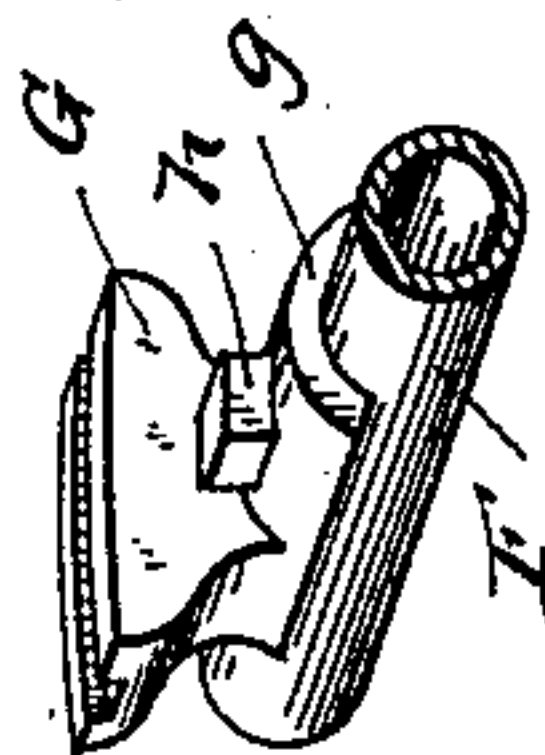


Fig. 4



Witnesses
H. A. Loe
J. S. Barker.

Inventors
George T. Smith & William F. Cochrane
by Doubleday & Bliss atty.

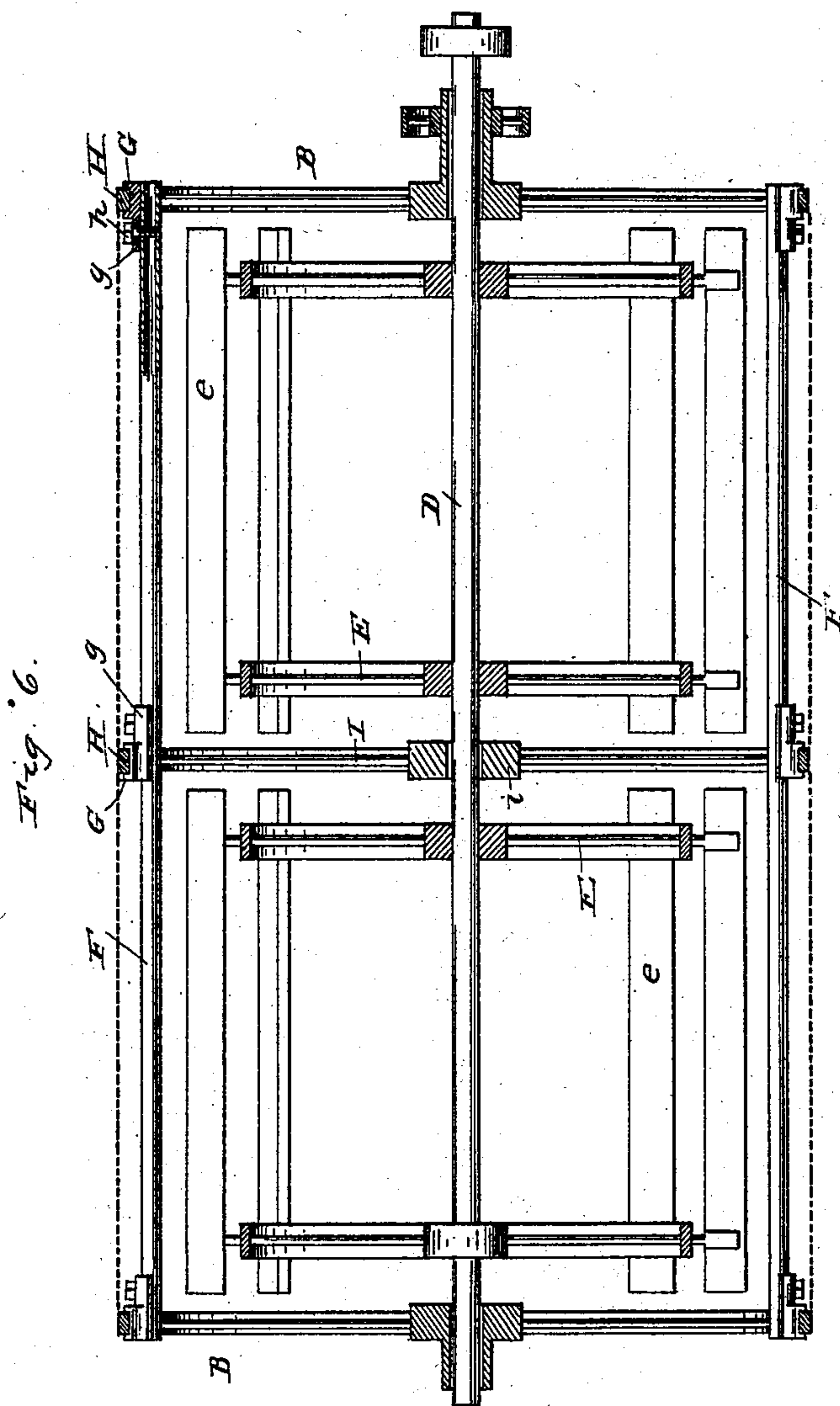
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2 Sheets—Sheet 2.

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J. S. Barker.

Inventors

George T. Smith and
William F. Cochrane
by Doubleday & Bliss attys

UNITED STATES PATENT OFFICE.

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

FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 374,501, dated December 6, 1887.

Original application filed March 20, 1883, Serial No. 88,846. Divided and this application filed May 29, 1883. Serial No. 96,486.
(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.

It has been found in operating reels of various constructions, in which there are employed longitudinal ribs arranged within the bolting-cloth and in close proximity thereto, that the material to be bolted collects in large quantities immediately adjacent to the ribs and banks up against them, so as to cover quite a portion of the cloth, and thereby reduce materially the bolting capacity of the reel.

The object of this invention is to overcome that difficulty; and to this end it consists, essentially, in the combination, with the bolting-cloth and its longitudinal supporting-ribs, of a series of rings arranged in planes parallel with the heads of the reels and a series of lugs, spurs, or carriers interposed between the rings and longitudinal bars.

Figure 1 is a side elevation of a portion of a reel having our invention applied thereto, the inclosing-casing and bolt-cloth being removed. Fig. 2 is a transverse section on the line xy , Fig. 1, looking in the direction of the arrow 1, Fig. 1. Figs. 3, 4, 5 are detached views of different parts of the mechanism. Fig. 6 is a vertical longitudinal section of a modified reel containing our invention.

Referring particularly to Figs. 1 to 5, A A represent an ordinary bolting-chest with the casing removed, and B is the head of the reel, mounted upon the shaft or trunnion b .

C is the disintegrator, which may be of any usual or preferred construction, and therefore need not be described.

D is the central shaft carrying spider-arms d , and E is the rim of the spider, to which the beater-blades e are attached, the sockets which support and carry these beaters being either of the construction shown in Fig. 2 or that shown in Fig. 3 or otherwise, as may be found desirable.

F F represent a series, preferably six, of longitudinal bars supported at their ends in the reel-heads and arranged in a circle, of which the beater-shaft D is the center. By preference we make these bars hollow, and usually employ gas-pipe in their construction, mounting their ends in hubs or bosses f , cast upon the inner faces of the reel-heads and securing them in position by nuts upon the outer faces of the reel-heads.

G g represent one of the supporting foot-pieces or carriers of which the body part G is, by preference, convex upon its outer face to fit accurately the cloth-supporting ring or hoop, to be described, and concave upon its under surface, so as to fit the longitudinal bar F, the annular longitudinally-projecting part g being provided with a hole, through which a set-screw, h , passes into the bar, thereby attaching the foot-piece firmly to the bar. The part G extends transversely of the bar F to about an equal distance upon opposite sides thereof, and is of such length upon its outer concave face that its engagement with the inner surface of the hoop will provide against any tendency to rock or tilt it upon the bar E, the pressure of the hook being distributed equally upon opposite sides of the portion of the rounded surface of the bar upon which the concave face of the foot rests, thus materially relieving the set-screw h from undue strain. The outer face of the part G of the carrier is circular, and, as shown in Fig. 4, is constructed with a longitudinal groove adapted to receive the cloth ring or hoop H, the groove being of such depth that its lips or flanges shall not project beyond the outer surface of the hoop H, so as to come in contact with the bolt-cloth. As will be readily understood from an examination of Figs. 1, 2, and 4, this construction provides that the internal surface of the cloth shall be entirely unbroken and unobstructed from end to end of the reel, except by the rings H H, which, by reason of their lying in planes parallel with the planes of the heads of the reel, do not offer any material obstruction to the meal flowing freely over the uncovered surface of the cloth.

In Fig. 5 we have shown a slightly modified form of the carrier, in which the portion G is

flat instead of being grooved, the hub or ring H being secured thereto by means of set-screws.

In Fig. 6 we have shown another construction of reel containing our invention, in which 5 A A is the bolting-chest, the casing having been removed. B B are the heads of the reel. D is the central shaft carrying four sets of spider-arms E, and beaters e, the beaters being 10 arranged in two series upon opposite sides of a central supporting-spider, I I, through the hub i, of which the central shaft passes and rotates freely, the centers of the longitudinal bars F F being attached to the outer ends of 15 the spider-arms, and thus supported against inward deflection; but it will be seen that in this construction the longitudinal bars have their ends mounted in the annular reel-heads, and by preference we make the opening 20 through the hub of such size that under ordinary circumstances the beater-shaft D shall not be in contact with the hub, so that the longitudinal bars are supported wholly at their ends; but in both constructions shown the in- 25 vention is the same in so far as relates to the longitudinal bars being supported at their ends by the annular heads, which rotate independently of the central shaft and at a different rate of speed therefrom.

30 We do not in this case claim any invention except that specifically recited in the claims, reserving the right to claim all other patentable features shown or described herein in another application, No. 88,846, filed March 35 20, 1883, of which this is a division.

What we claim is—

1. In a reel-bolt, the combination, with the longitudinal bars, the cloth-supporting ring, and the cloth, of the herein-described carrier for the cloth-supporting ring, consisting of the 40 part G, adapted at its inner side to rest upon the longitudinal bar and at its outer surface to receive the cloth-supporting ring, the longitudinal portion g, and the set screw, substantially as set forth.

2. In a reel-bolt, the combination, with the longitudinal bar, the cloth-supporting ring, and the cloth, of the herein-described carrier for the cloth-supporting ring, consisting of 45 the part G, adapted at its inner side to rest upon the longitudinal bar, and having its outer surface expanded laterally upon both ends and adapted to receive the cloth-supporting ring, the longitudinal shank g, and the set-screw, substantially as set forth. 50

3. In a reel-bolt, the combination of the centrally-open annular heads, the bars F, supported at their ends in the annular heads, the carriers on the bars F, and the cloth-rings 55 mounted upon the outer surfaces of the carriers, substantially as set forth. 60

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

GEORGE. T. SMITH.
WILLIAM F. COCHRANE.

Witnesses:

I. F. KNAPP,
GEO. S. BENNETT,