(No Model.) 4 Sheets—Sheet 1.

P. GILLEN.

APPARATUS FOR THE GRADUAL REDUCTION OF GRAIN.

No. 307,386. Patented Oct. 28, 1884.

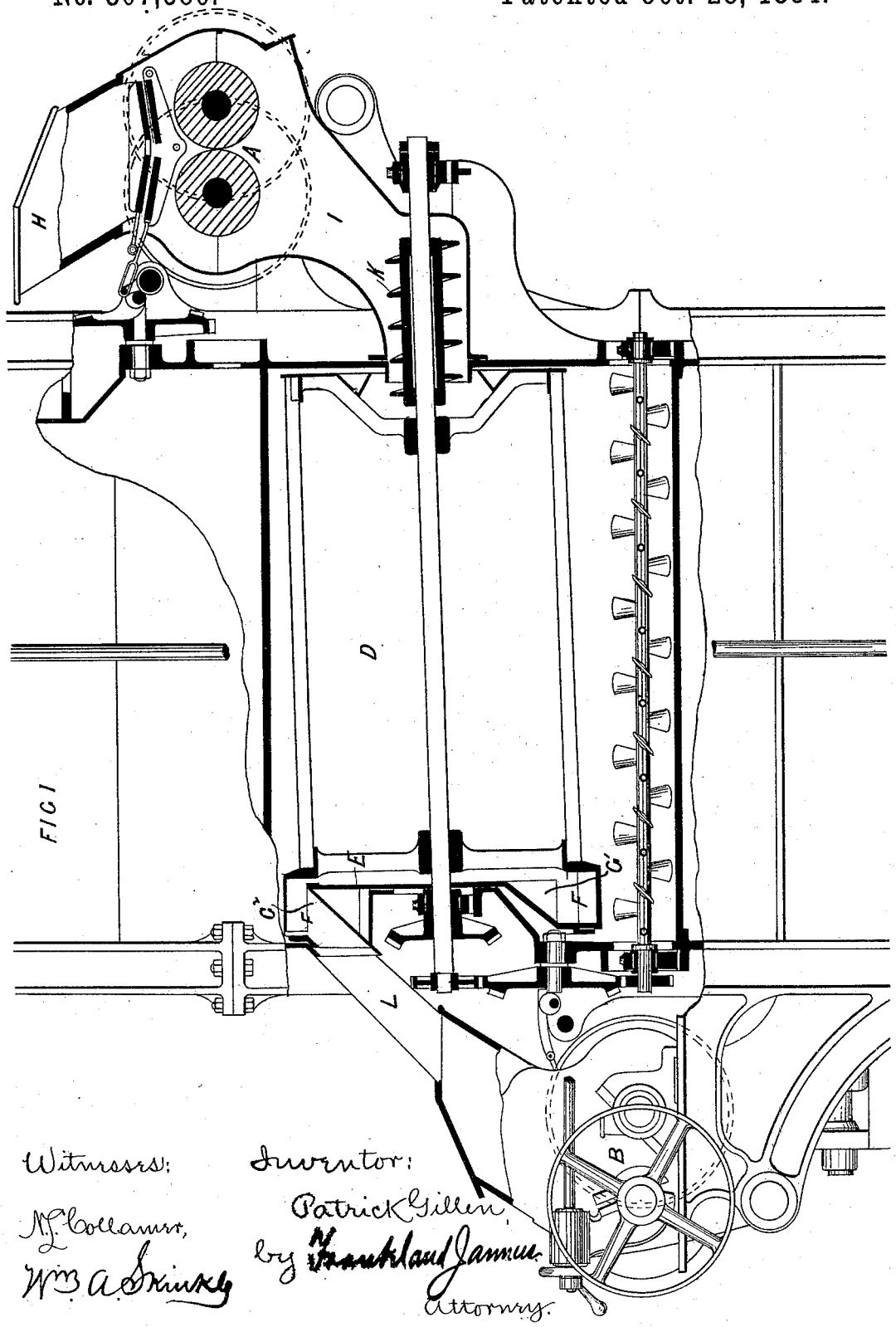

FIG I

Witnesses:
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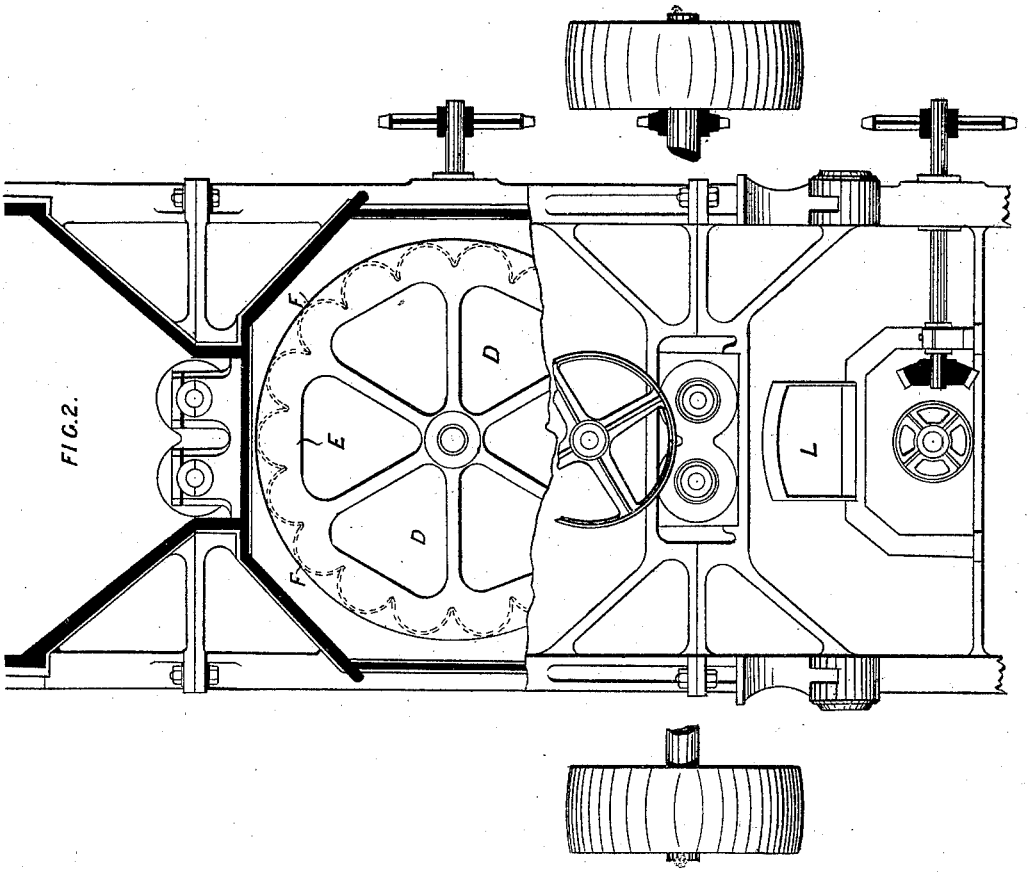

FIG. 2.

Witnesses:

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(No Model.) 4 Sheets—Sheet 3.

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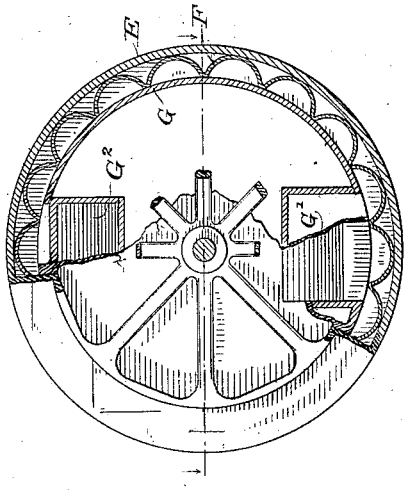

Fig. 4.

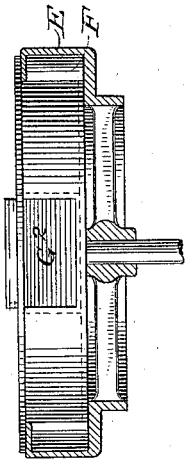

Fig. 5.

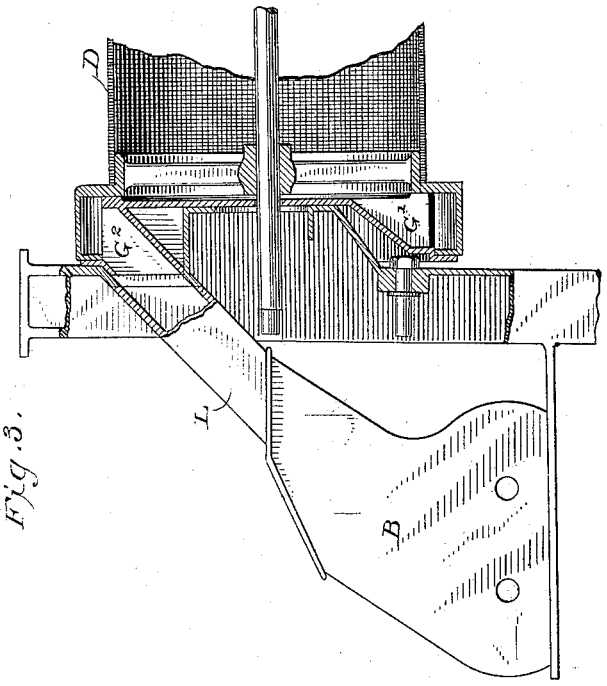

Fig. 3.

Witnesses
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By his Attorney
Frankland James

(No Model.) 4 Sheets—Sheet 4.

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APPARATUS FOR THE GRADUAL REDUCTION OF GRAIN.

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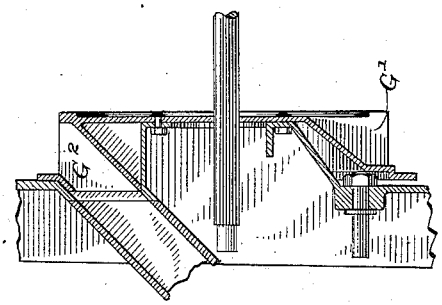

Fig. 7.

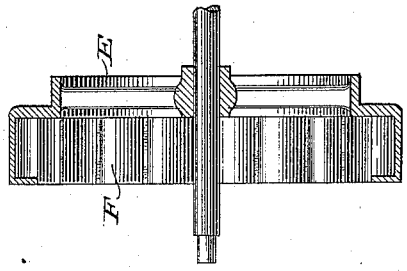

Fig. 9.

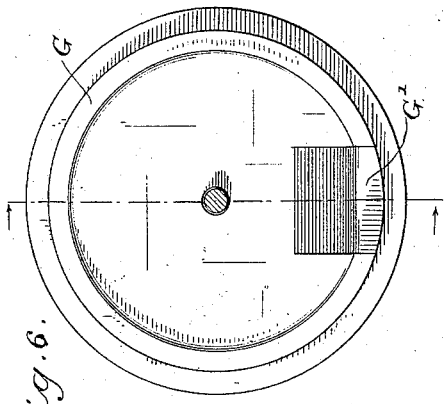

Fig. 6.

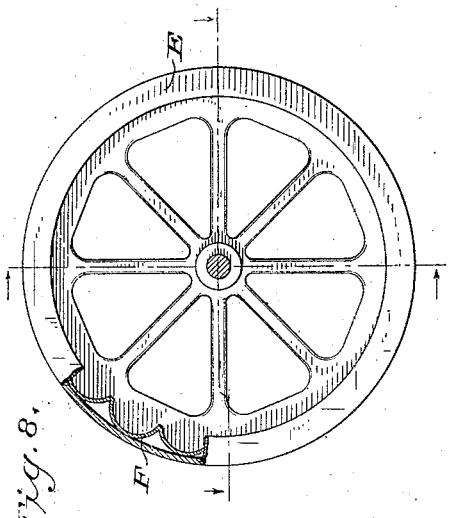

Fig. 8.

Witnesses
Geo. W. Young.
N. L. Collamer.

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UNITED STATES PATENT OFFICE.

PATRICK GILLEN, OF LONDON, COUNTY OF MIDDLESEX, ENGLAND.

APPARATUS FOR THE GRADUAL REDUCTION OF GRAIN.

SPECIFICATION forming part of Letters Patent No. 307,386, dated October 28, 1884.

Application filed May 27, 1884. (No model.) Patented in England January 30, 1884, No. 2,400, and in Belgium June 12, 1884, No. 65,452.

To all whom it may concern:

Be it known that I, PATRICK GILLEN, a citizen of the United States, residing at London, in the county of Middlesex and Kingdom of England, have invented new and useful Improvements in Apparatus for the Gradual Reduction of Grain, of which the following is a specification.

My invention relates to improvements in roller-mills and other mills for reducing grain in which the meal is passed from one pair of rolls or grinding apparatus through a reel or dresser to another pair of rolls, and so on from one series to another, the objects of my improvements being to combine several sets in a comparatively small space, and in such a manner that the parts shall be easy of access and of removal when required. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a section through the two pairs of rolls and silk dresser; Fig. 2, an end view of same, partly in section. Fig. 3 is a vertical section of the elevator. Figs. 4, 6, and 8 are detail views of parts of said elevator, and Figs. 5, 7, and 9 respective sections thereof.

Similar letters refer to similar parts throughout the several views.

A indicates one pair of rolls; B, a second pair. D is a cylinder or reel of silk, wire-gauze, or other suitable screening material.

E is a circular elevator, which may be a ring or circle of any suitable material, having formed in or on its periphery recesses, cups, or concave compartments F, the open sides or faces of which revolve almost in contact with the periphery of the fixed disk or drum G, which keeps the contents of the cups F from escaping until required.

The construction of the elevator E is shown in detail in Figs. 3 to 9.

At Figs. 3, 4, and 7 it will be seen that the fixed disk G has a recess or cavity, G′, in which the meal collects, and also an opening or hopper, G^2, into which the meal is discharged from the cups F.

H is a hopper leading into rolls A; I, hopper leading from rolls A; K, a worm or creeper conveying meal into reel D; L, hopper leading from the opening G^2 of the fixed disk G to the rolls B.

I prefer to transmit power to the rolls by belting from two counter-shafts at the base, having spur-wheels giving them differential speed, and only one first-motion pulley on the machine, which may be driven from any convenient source in a mill; but I may use any suitable driving-gear. The mill being at work, the meal fed into H enters the rolls A, passes thence through I to the worm K, by which it is conveyed to the reel D, where it undergoes a first sifting and separation, the fine flour and middlings passing through the silk, and the remainder of the meal traveling to the opposite end of the reel, where it passes into the collector G′ of the fixed disk G, from whence it falls into the cups F of the elevator E, which carries it up and delivers it through the opening G^2 into the hopper L, from whence it passes into the second pair of rolls, B, and so on from one set of rolls and reels to another throughout the mill.

I am aware that prior to my invention elevators have been placed at the end of sifting or separating reels operating in conjunction with roller-mills. I therefore do not claim such a combination, broadly; but

What I do claim is—

1. The circular revolving elevator E, provided with cups F, opening directly toward the axis of said elevator, in combination with the fixed disk G, its rim covering the mouths of said cups, and having openings at bottom and top, through which the material to be elevated passes respectively into and out of said cups.

2. The two pairs of rollers A and B, in combination with an interposed inclined dresser, a circular elevator at its lower end, and a driving-shaft common to both.

3. The two pairs of rollers A and B, an interposed inclined dresser, and a circular elevator at its lower end upon its shaft of rotation, in combination with a worm, K, for conveying the grain within the end of said dresser.

PATRICK GILLEN.

Witnesses:

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MICHAEL RYAN.