

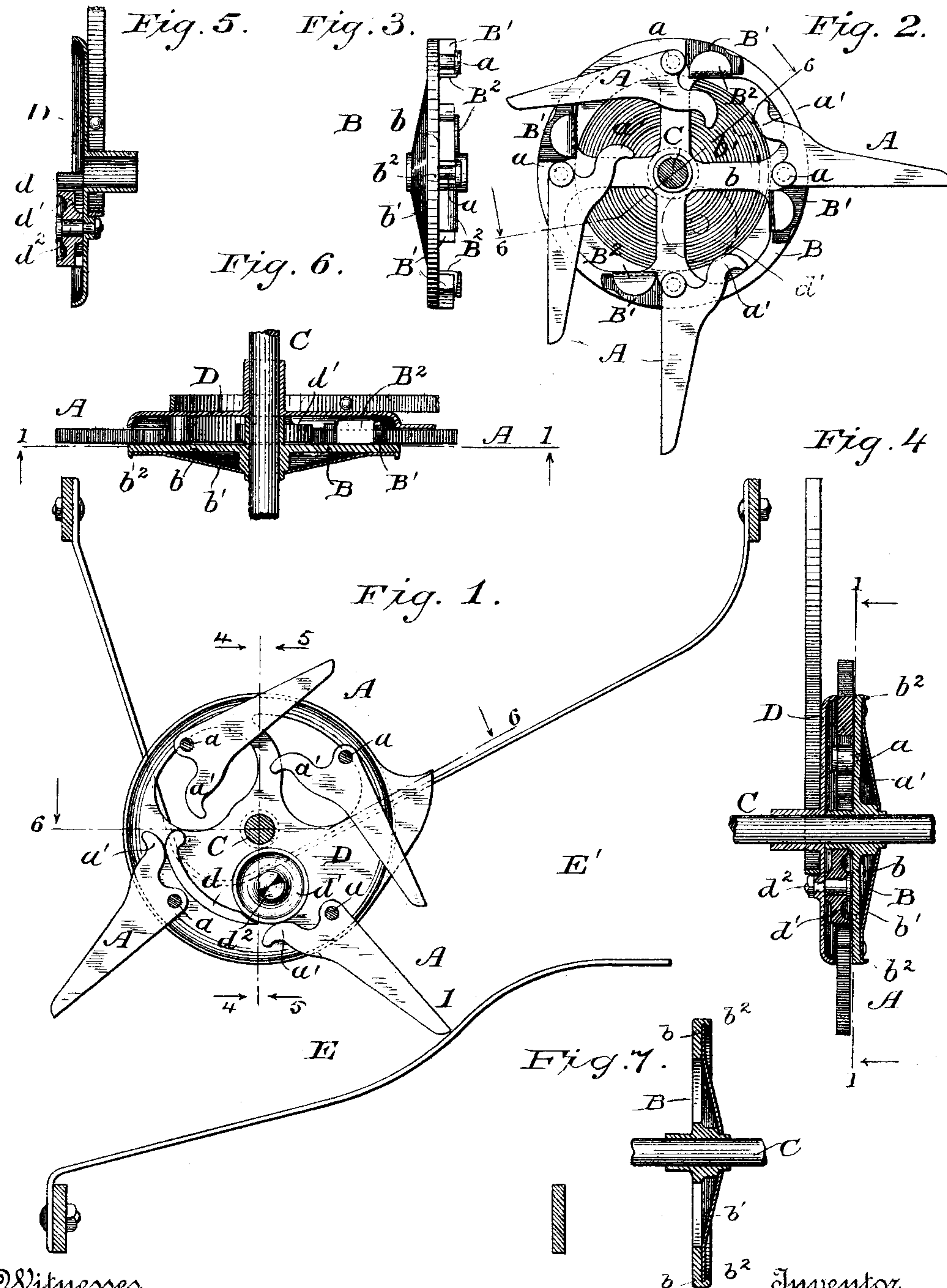
(No Model.)

J. S. DAVIS.

PACKING MECHANISM FOR GRAIN BINDERS.

No. 388,642.

Patented Aug. 28, 1888.



Witnesses,
Arthur Johnson.
Frank O'Neil.

By his Attorney

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UNITED STATES PATENT OFFICE.

JOHN S. DAVIS, OF CLEVELAND, OHIO.

PACKING MECHANISM FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 388,642, dated August 28, 1888.

Application filed November 8, 1887. Serial No. 254,608. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. DAVIS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have
5 invented certain new and useful Improvements in Packing Mechanism for Grain-Binders, of which the following is a description.

My invention relates to that portion of the gaveling mechanism of grain-binders commonly called the "packers," and is an improvement on the device shown in Letters Patent No. 283,866, granted to me August 28, 1883.

The preferred form of my device, as shown
15 in the accompanying drawings, specially adapts it for use in connection with platform binders; but with slight modification, within the skill of ordinary mechanics, it is also applicable to other forms of binders.

20 Figure 1 is a side elevation, partly in section on the line 1 1 of Figs. 4 and 6, showing the binding-receptacle and the contracted throat or entrance thereto, in which the packer is located, the fixed half of the packer shell or casing only being shown. Fig. 2 is a side elevation of the other or moving half of the casing with the packer-arms in working position. Fig. 3 is an edge view of the moving section of the casing with the packer-arms removed.
30 Fig. 4 is a view in vertical section on the line 4 4 of Fig. 1. Fig. 5 is a similar section on the line 5 5 of Fig. 1 of the stationary half of the casing. Fig. 6 is a transverse section through the packer on the lines 6 6 of Figs. 1 and 2.
35 Fig. 7 is a detailed section showing a modification of the manner of securing the sheet-metal side disk or covering to the malleable spider-frame by spinning the annular flange of the latter down over the edge of the disk.

40 In this my present invention, as in my patent, No. 283,866, before referred to, my packing device consists of a series of arms or fingers, A, pivoted at *a* upon a disk, B, secured upon the continuously-revolving packer-shaft C. The arms are incased between the disk B,
45 upon which they are mounted, and a fixed disk, D, and project through a peripheral slot between the edges of the two disks. Each arm is provided with a curved heel projection, *a'*, which trails over a fixed cam-ledge, *d*, on the disk D, to protrude the arm from the casing
50 at the time it is passing through the throat E

and toward the gaveling-receptacle E' of the binder, as and for the purpose fully set forth in my patent, No. 283,866, referred to. In that
55 patent the arms were also provided with projecting toes on the sides opposite to their heels, which, resting against stop-lugs rising from the disk B when the arms were protruded from the casing, prevented them from falling
60 forward too far. When the arms had passed through the throat and their heels ran off the fixed cam-ledge *d*, they would "feather" out of the stream of grain in the throat and fall back into the casing until the heels would rest
65 against the stop-lugs, where they would remain until they were again encountered by the cam-ledge *d*. This construction I found in practice would work well, but was objectionable on account of the noise arising from the con-
70 stant clicking of the heels and toes of the arms against the stop-lugs, and also because of the rapid wear due to the constant hammering or succession of blows on the stop lugs. To obviate these objections, I have dispensed with
75 the toes on the arms and substituted for the solid stop-lugs previously used a series of rubber blocks or cushions, B', secured upon the disk B in any suitable manner. In the drawings I have shown them as held in the em-
80 brace of the clips B", cast integral with the disk-frame, which I prefer to make of malleable iron. The clips are mere L-shaped projections from the frame, within which the rubber block is set and clamped in place by the
85 blow of a hammer on the outer side of the clip, driving it into the rubber with sufficient force to secure the latter against accidental displacement.

The blocks, it will be observed, project at
90 each end beyond the clips, and each block serves as a cushion to two arms, an arm when in its erect working position bearing with its front edge against the nearest adjacent cushion, which prevents its pitching too far for-
95 ward; but when it is feathered or drawn back into the casing its end rests upon the adjacent cushion on the other side.

It will thus be seen that the arms strike upon noiseless and yielding cushions when they are
100 projected from the casing by the cam, and also when they are released by it and fall back into the casing, thus practically obviating unnecessary noise and wear.

When the arms are in the throat in the position shown at *l*, Fig. 1, they are working at times against the resistance of a well-compacted gavel in the binding receptacle, and by reason of the leverage press the heels *a'* against the cam ledge with great force, causing much wear of the parts and loss of power through friction. I remedy this by inserting in the ledge at this point an anti-friction roller, *d'*, of the right diameter to continue the cam-track in its proper shape. This roller turns freely upon its pin *d* whenever it is pressed upon by the trailing heels of the arms.

In order to lighten the casing as much as possible, I form the revolving disk B of a light frame or spider wheel, *b*, covered on its outer side by a thin disk of sheet metal, *b'*, secured to the frame at its edges by riveting, and dished and perforated to fit upon the projecting hub, as shown. A slight ledge or flange, *b²*, on the frame covers the joint between the disk and frame, and prevents the entrance of straws or dirt in the joint. If desired, this ledge may be hammered over or spun down upon the edge of the disk, as shown in Fig. 7, to make an absolutely tight joint; but I have not found this necessary.

I do not mean to confine myself to the use of rubber alone for the cushion-blocks, as other yielding materials—such as leather or wood—might be used with equal or, in some instances, greater advantage than rubber.

What I claim as new and of my own invention is—

1. In a rotary packer, the combination of the revolving disk, the arms A, pivoted thereon, the fixed cam upon which the arms trail, and the yielding noiseless cushions on the disk,

against which the arms strike when thrown out by the cam, substantially as hereinbefore set forth.

2. The combination of the packer-casing consisting of a stationary and a revolving disk, a cam on the stationary disk, arms pivoted on the revolving disk and trailing over the cam, and yielding cushions against which the arms fall when released by the cam, substantially as hereinbefore set forth.

3. The combination of the disk and the ductile-metal clips rising therefrom with the cushion-blocks held in close embrace between the disk and clips, the latter being so firmly pressed against the blocks as to constantly hold them in place, substantially as set forth.

4. The combination of the cast-metal skeleton frame or spider *b* with the sheet-metal disk *b'*, embracing the hub and secured to the rim of the spider, substantially as described.

5. The combination of the cast-metal skeleton frame or spider *b* and the sheet-metal disk *b'*, secured thereto, as described, with the annular rim or ledge *b²*, covering the joint of the spider and disk at their edges, substantially as hereinbefore set forth.

6. The combination of the revolving packer-disk carrying the pivoted arms and cushions with the stationary disk having the fixed cam-track and the roller *d'*, arranged substantially as and for the purpose hereinbefore set forth.

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

JOHN S. DAVIS.

Witnesses:

HENRY W. WELKER,
J. B. COFFINBERRY.