

No. 701,866.

Patented June 10, 1902.

A. T. FERRELL.

BLAST REGULATOR FOR GRAIN CLEANERS.

(Application filed May 24, 1901.)

(No Model.)

3 Sheets—Sheet 1.

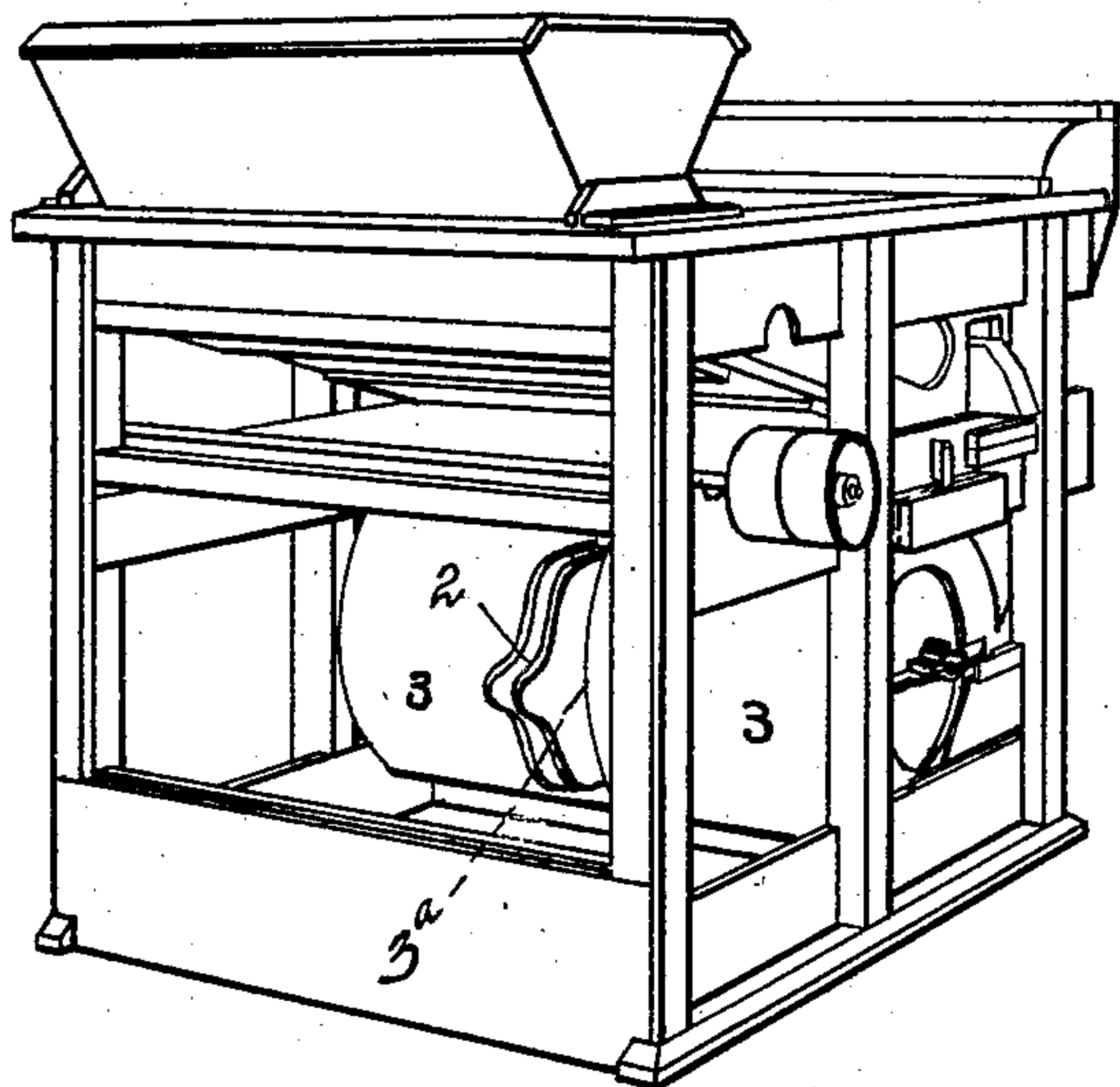


FIG. 1.

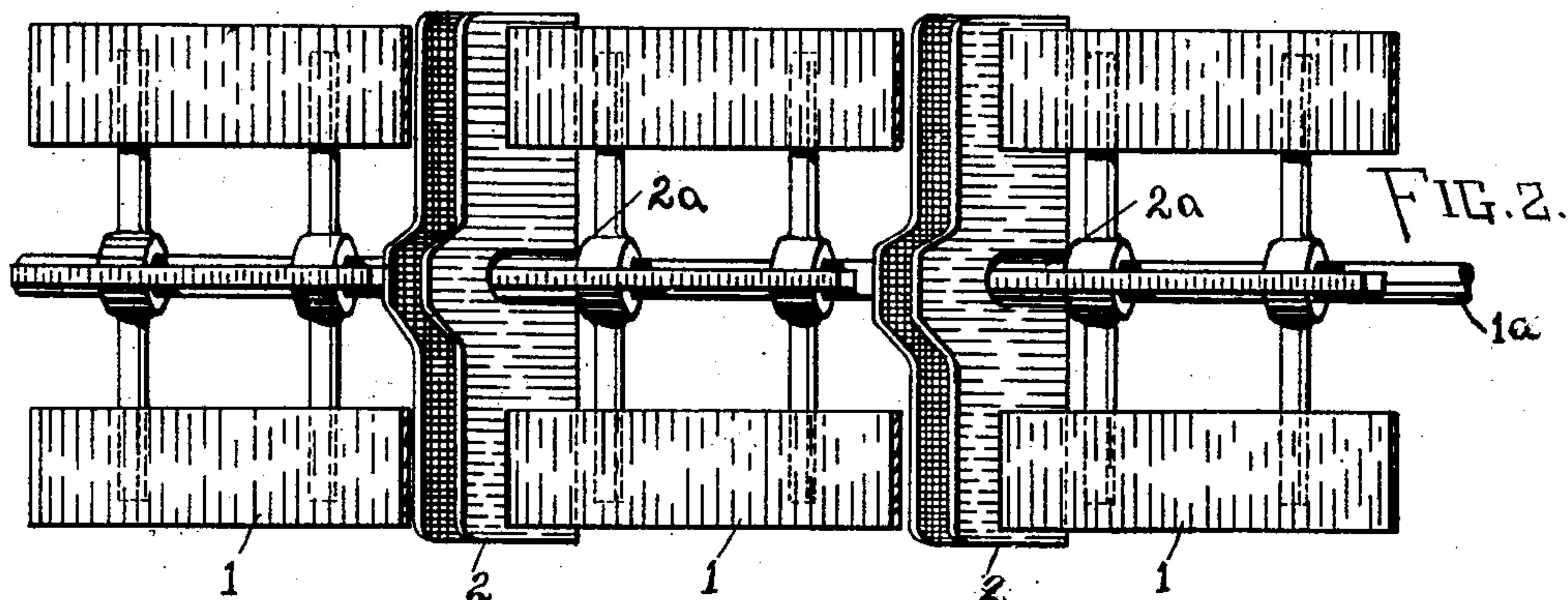


FIG. 2.

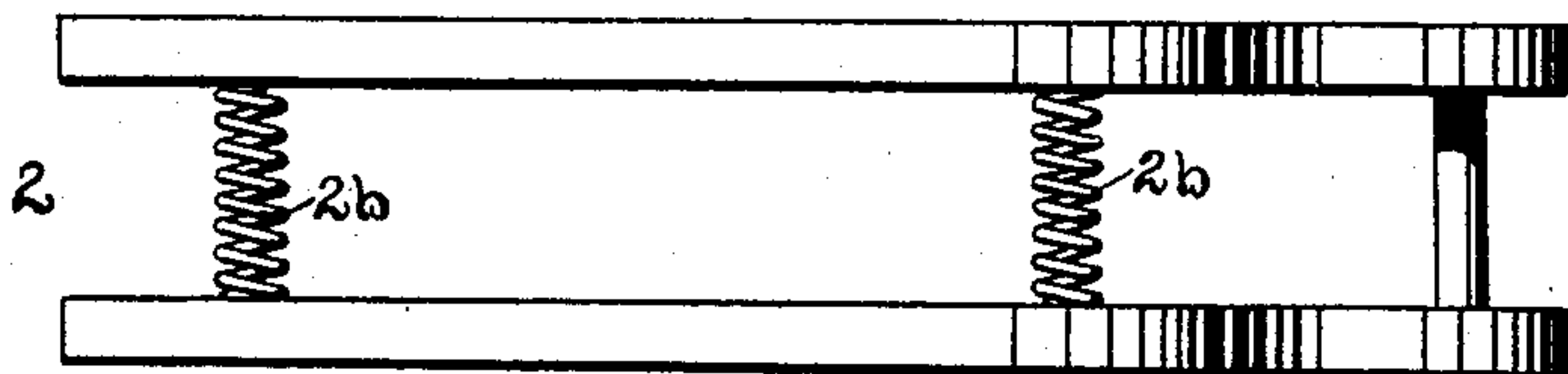


FIG. 3.

WITNESSES:

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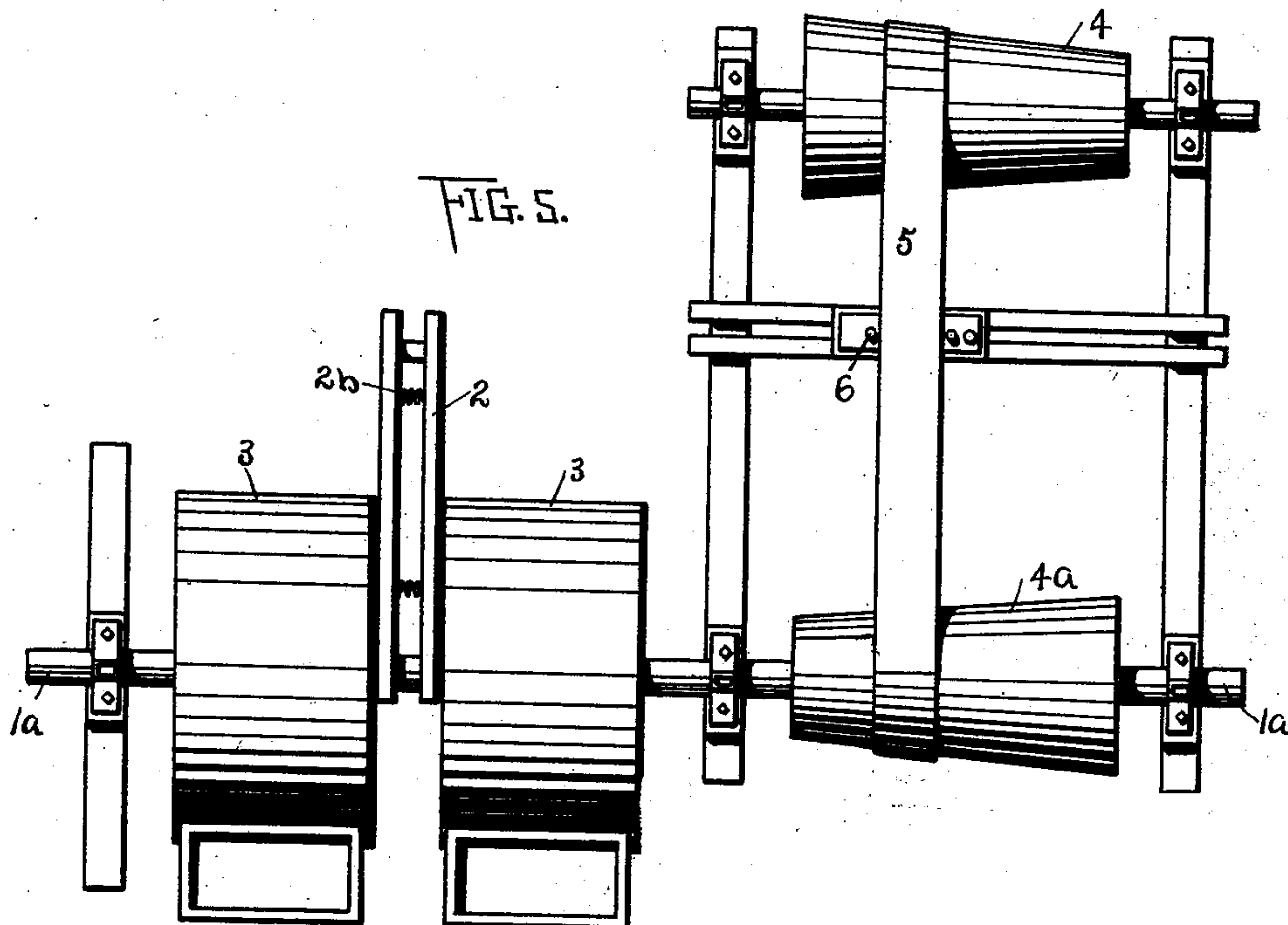
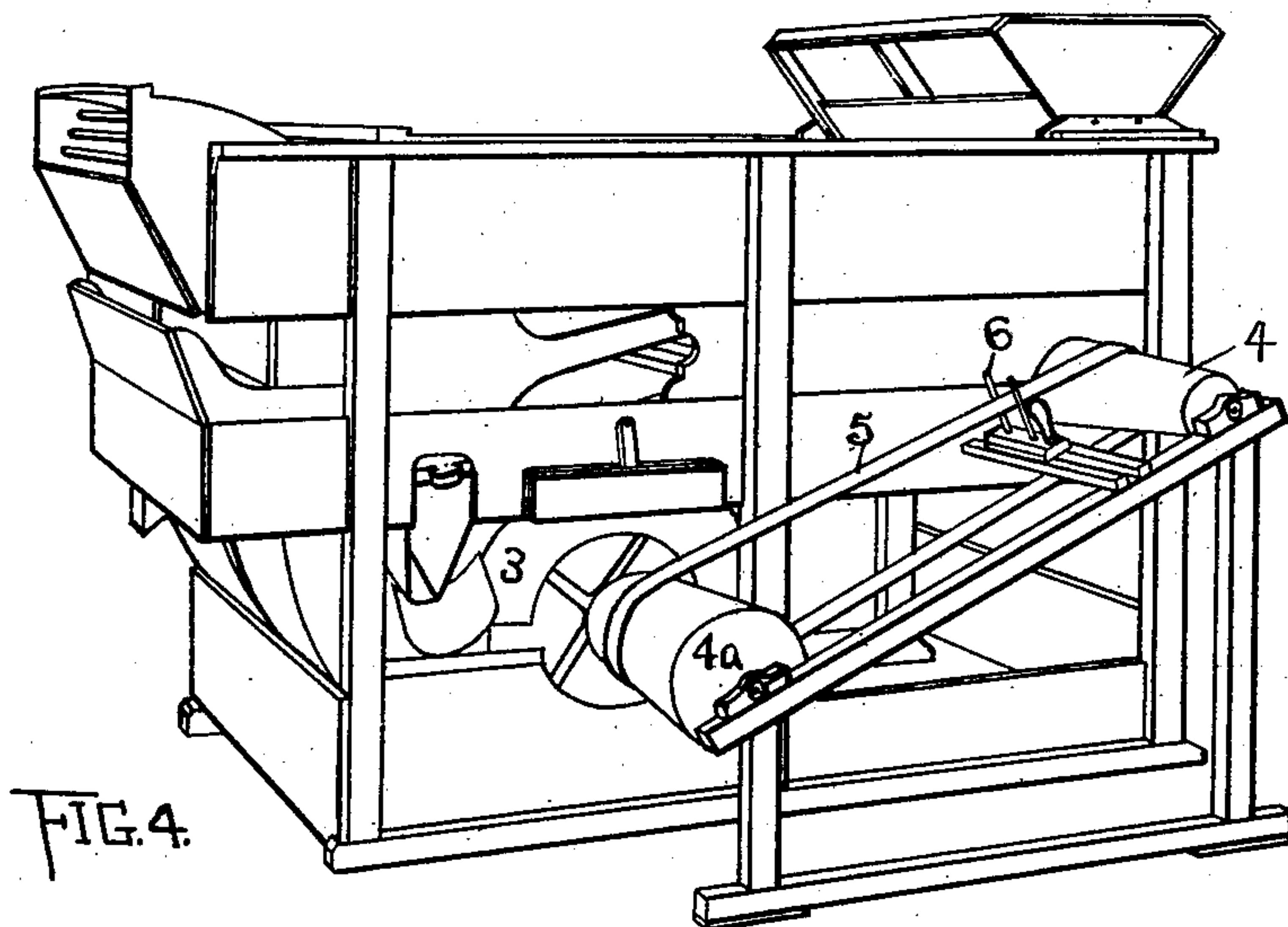
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

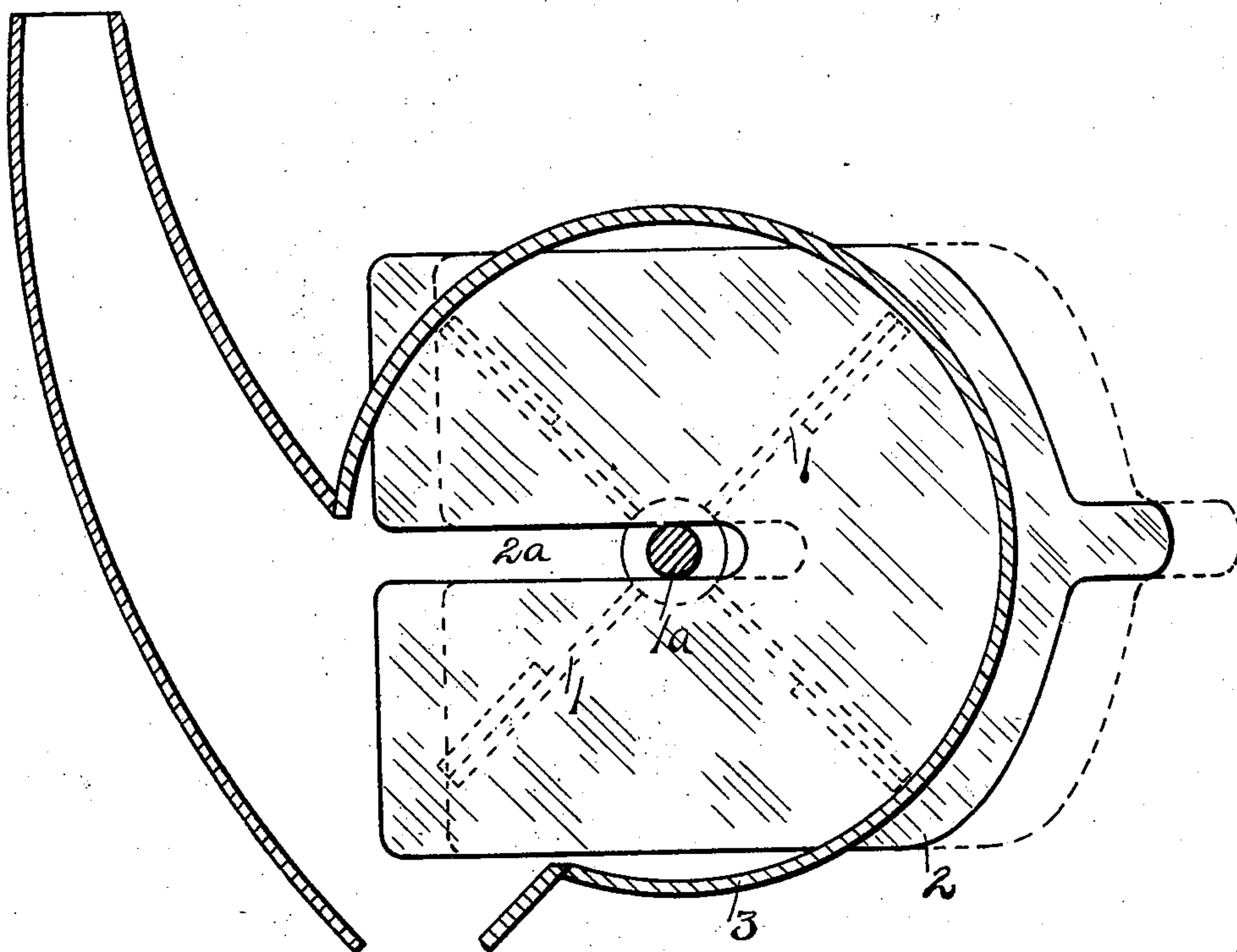


FIG. 6.

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UNITED STATES PATENT OFFICE.

ALBERT T. FERRELL, OF SAGINAW, MICHIGAN.

BLAST-REGULATOR FOR GRAIN-CLEANERS.

SPECIFICATION forming part of Letters Patent No. 701,866, dated June 10, 1902.

Application filed May 24, 1901. Serial No. 61,717. (No model.)

To all whom it may concern:

Be it known that I, ALBERT T. FERRELL, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Blast-Regulators for Grain-Cleaners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to air or blast drums for grain-cleaning machines, and pertains more particularly to a divided fan construction having means for admitting air to the fan intermediate the ends of the drum and for regulating its admission. It consists, further, in certain means for regulating and controlling the speed of the fan.

The object of the invention is to provide an air or blast drum for grain-cleaning machines which will produce uniform distribution of the blast throughout the cross-section of the vertical air-pipe, permitting accurate and quick adjustment of the air-supply, suiting it to grains of different kinds, and conforming it to varying local conditions of draft.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a machine embodying my improved blast-drum arrangement. Fig. 2 is a perspective view of a series of fans and double-leaf valves. Fig. 3 is a top view of a valve. Fig. 4 is a perspective view of a machine embodying the drum construction and the means for varying the speed of the fans. Fig. 5 is a top view of the speed-regulating device and the blast-drum. Fig. 6 is a vertical transverse section through the blast-drum or fan-casing, showing the valve in elevation.

As is plainly shown in the drawings, the device consists in a divided fan 1, made up of two or more lengths, between which is adjustably slid a spring-actuated double-leaf valve 2. The blast-drum 3, which surrounds the fans, is similarly divided, the sides of the double-leaf valve 2 bearing against the ends 3^a of the adjacent drum-sections and adapted to slide transversely across them. In order to permit the valve to close the ends of the

drum-sections, the valves are provided with slots 2^a, which embrace the fan-shaft 1^a. The two leaves of the double-leaf valve are pressed apart and held against the ends of the drum-sections by coiled springs 2^b, interposed between them. By this construction the air-supply does not enter the fan only through the outer ends 3^b of the drum 3, as has been common heretofore, but part of it is admitted between the leaves of the valves and is thence delivered into the drum. The effect of introducing the double-leaf valve is therefore to admit air intermediate the ends of the drum and to avoid interference between the air-currents, which in the absence of the valve would enter the air-drum centrally at its opposite ends and meet at its middle, thereby producing eddies and pulsation of the air in the blast-pipe. In practice I divide the drum and fan into two or more sections of relatively short length, each pair of sections being separated by a double-leaf valve adjustably slid between them. The air-supply can be regulated with the utmost nicety, and the intensity of the blast throughout the cross-section of the air-pipe can be kept uniform by properly adjusting the valves 2. In order to produce the best results with this drum construction, it is necessary to have gradual but positive changes of speed of the fan-spindle to suit different grains or to suit the same kinds of grain having various amounts of dust and refuse. I accomplish this regulation of speed by the device illustrated in Figs. 4 and 5, in which 4 is a tapered drum driven by the line-shaft or other source of power, and 4^a is a similar drum mounted on the fan-spindle 1^a parallel with the drum 4, the tapers of the two drums being in opposite directions. 5 is a belt passing around the two drums and arranged to be shifted along them by the belt-shifter 6. By this means the speed of the fans 1 can be regulated to any extent desired, increasing or decreasing the speed by very small amounts, if necessary.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An air or blast device comprising a drum divided into sections; a fan divided into sections operating in the drum-sections; double-leaf valves slidably adjustable between the

drum-sections; the leaves of said valves being yieldingly held against the ends of said drum-sections, substantially as described.

- 5 2. An air or blast device comprising a drum divided transversely into sections; a fan divided transversely into sections operating in the drum-sections; valves slidably adjustable between the drum-sections; said valves be-

ing yieldingly held against the ends of said drum-sections, substantially as described. 10

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

ALBERT T. FERRELL.

Witnesses:

I. GOULD,

WILLIAM STEPHENS.