

No. 786,168.

PATENTED MAR. 28, 1905.

C. A. SMITH.  
PORTABLE FLOUR MILL  
APPLICATION FILED JUNE 30, 1904.

3 SHEETS—SHEET 1.

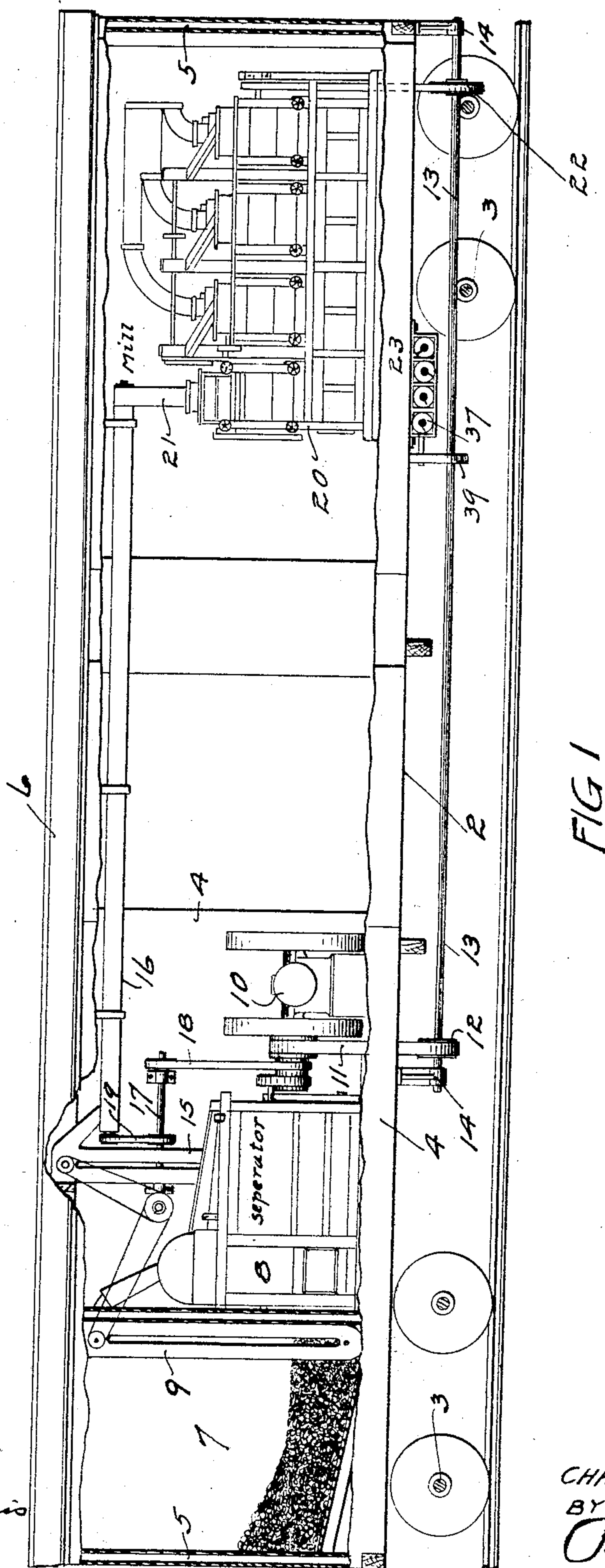


FIG 1

WITNESSES  
M. M. Davis  
M. H. Hagerly

INVENTOR  
CHARLES A. SMITH  
BY  
Paul & Paul  
HIS ATTORNEYS

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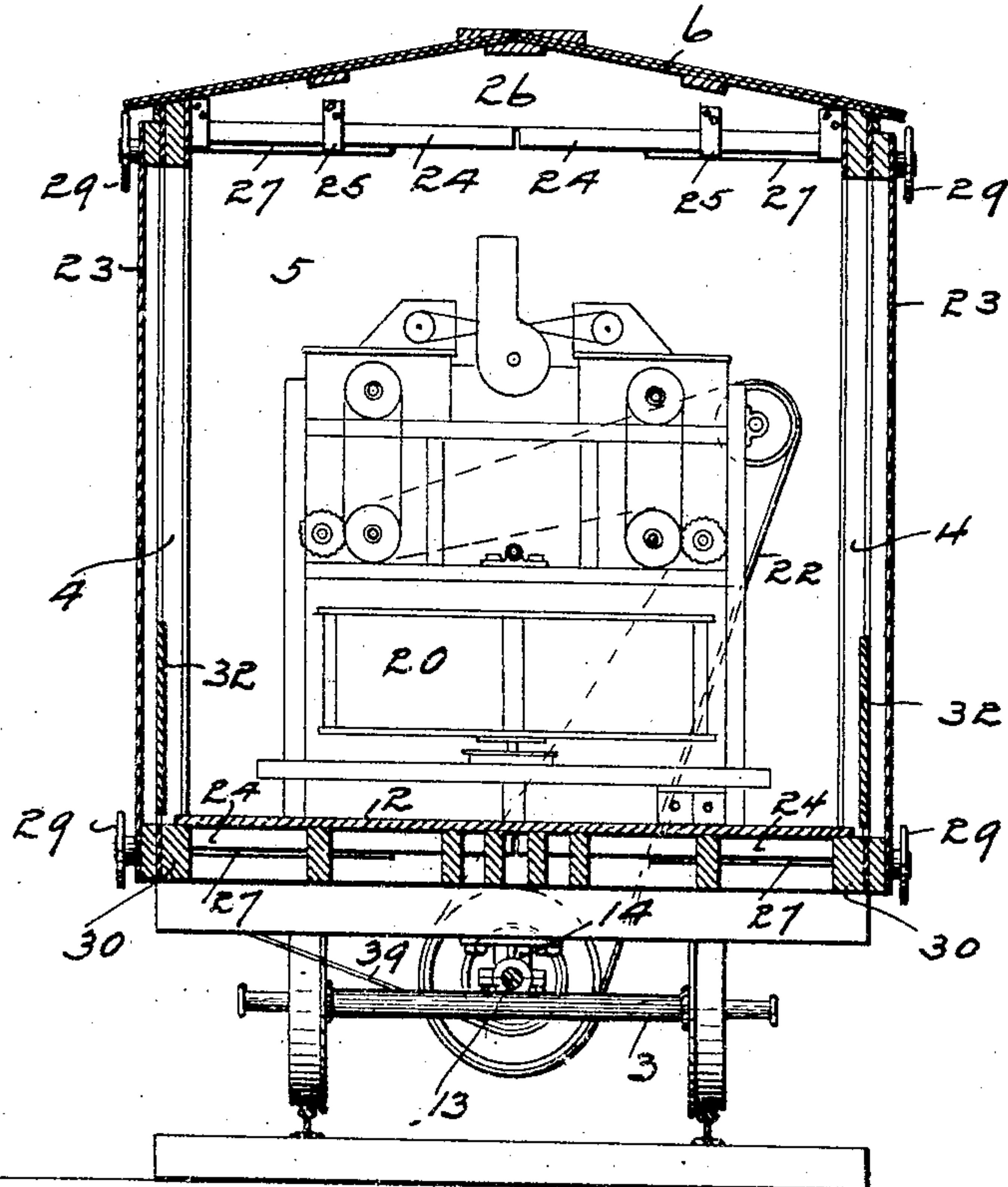


FIG. 2.

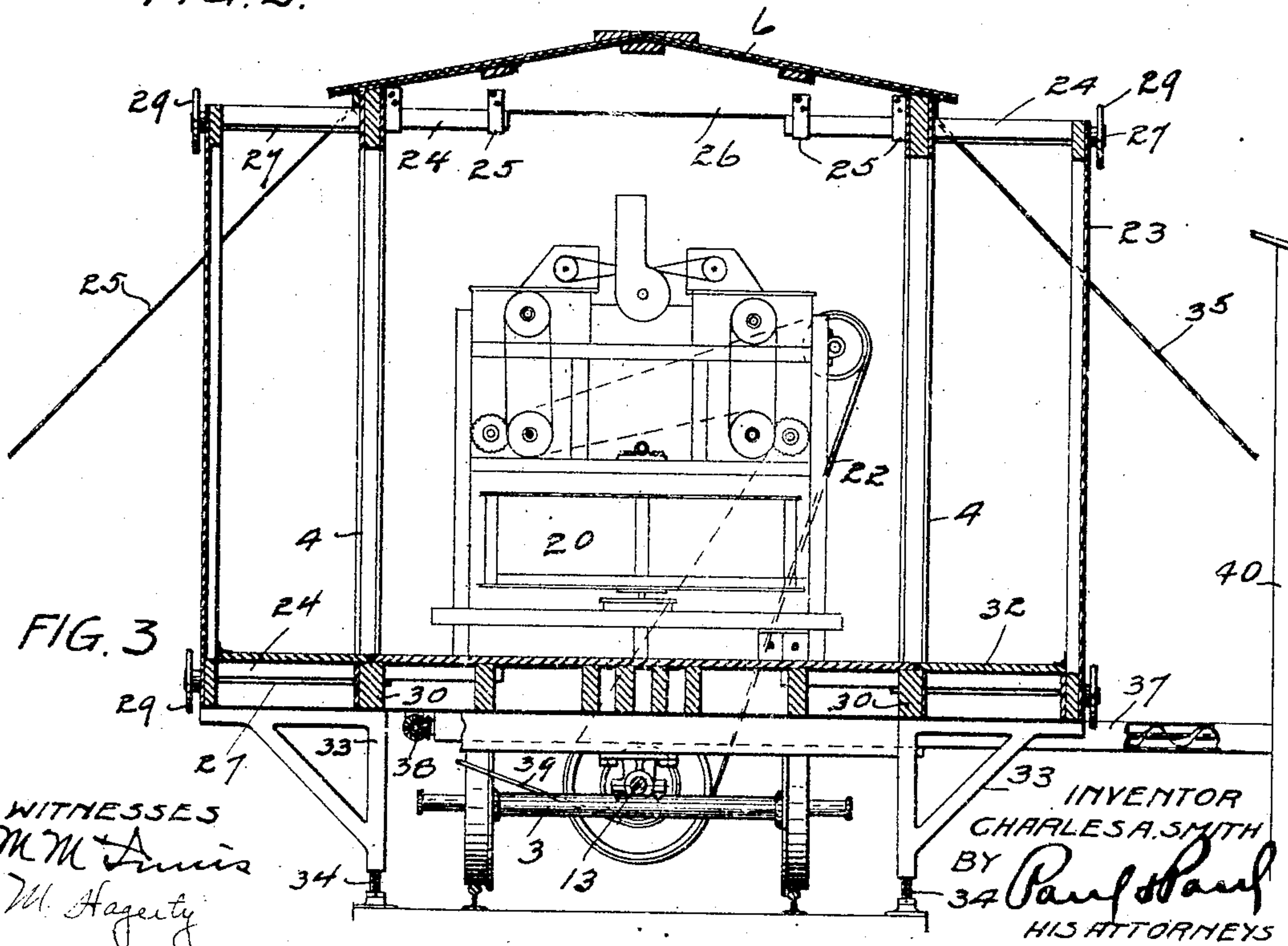


FIG. 3

WITNESSES  
M. M. Davis  
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BY Paul Paul  
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3 SHEETS—SHEET 3.

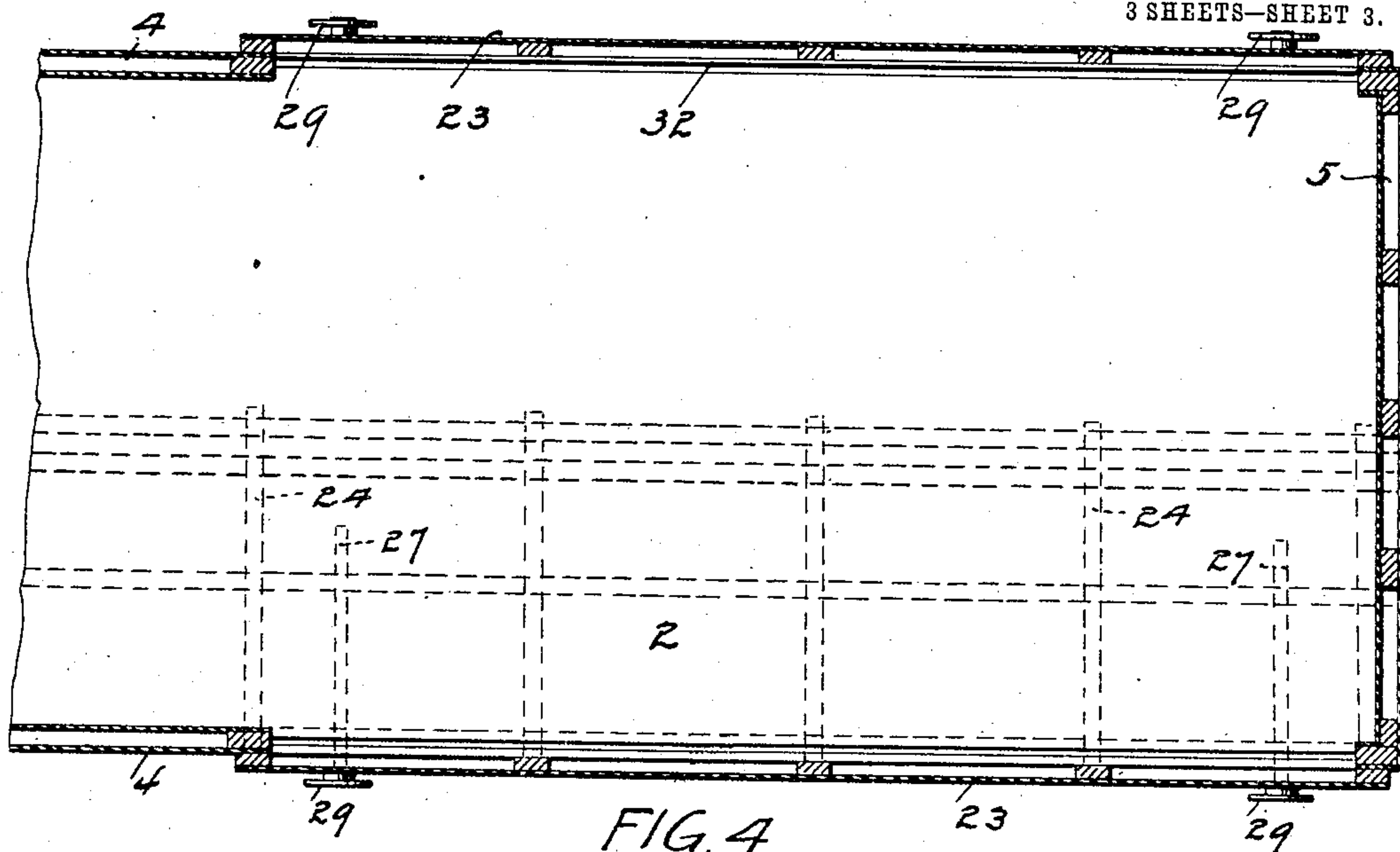


FIG. 4

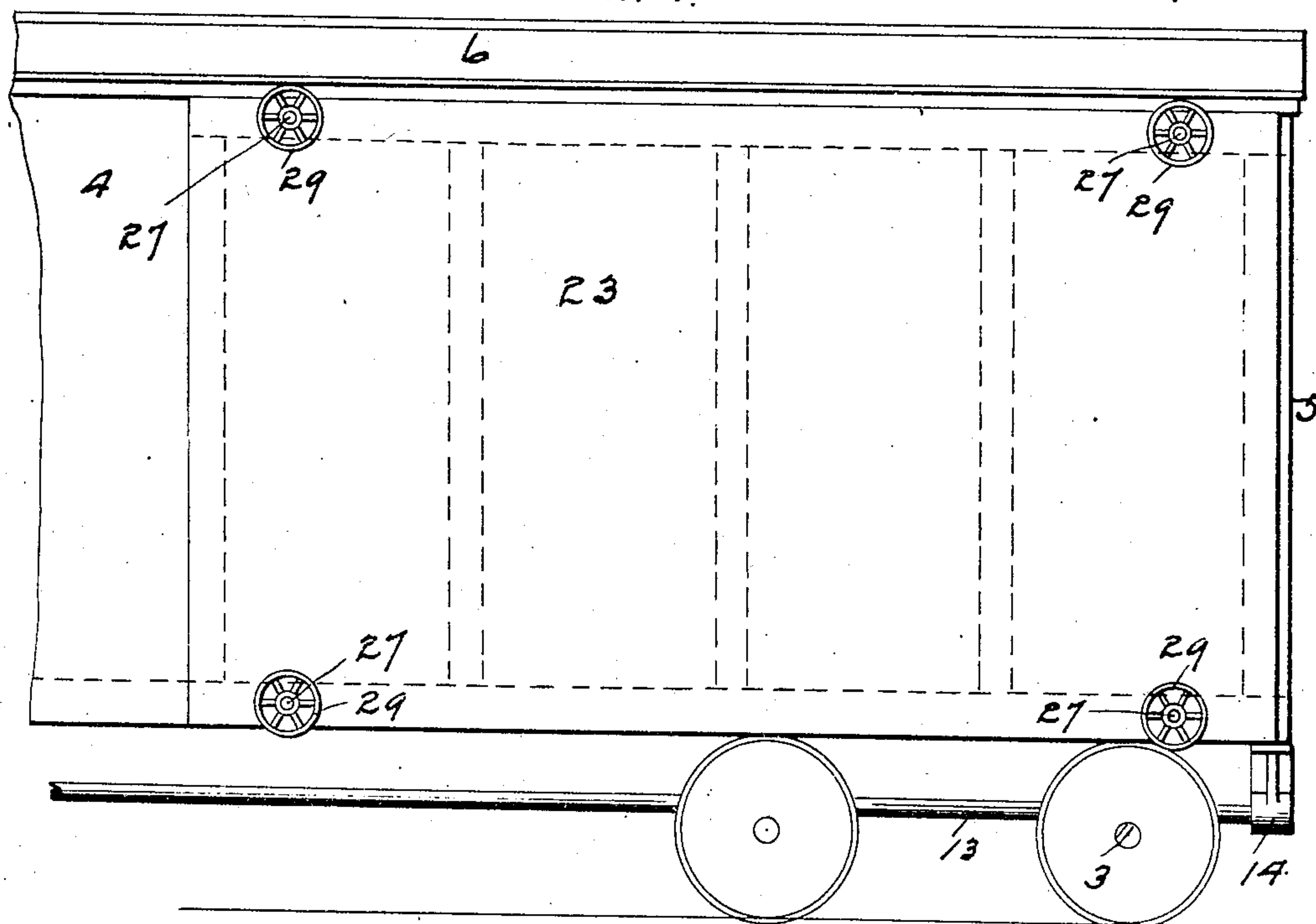


FIG. 5

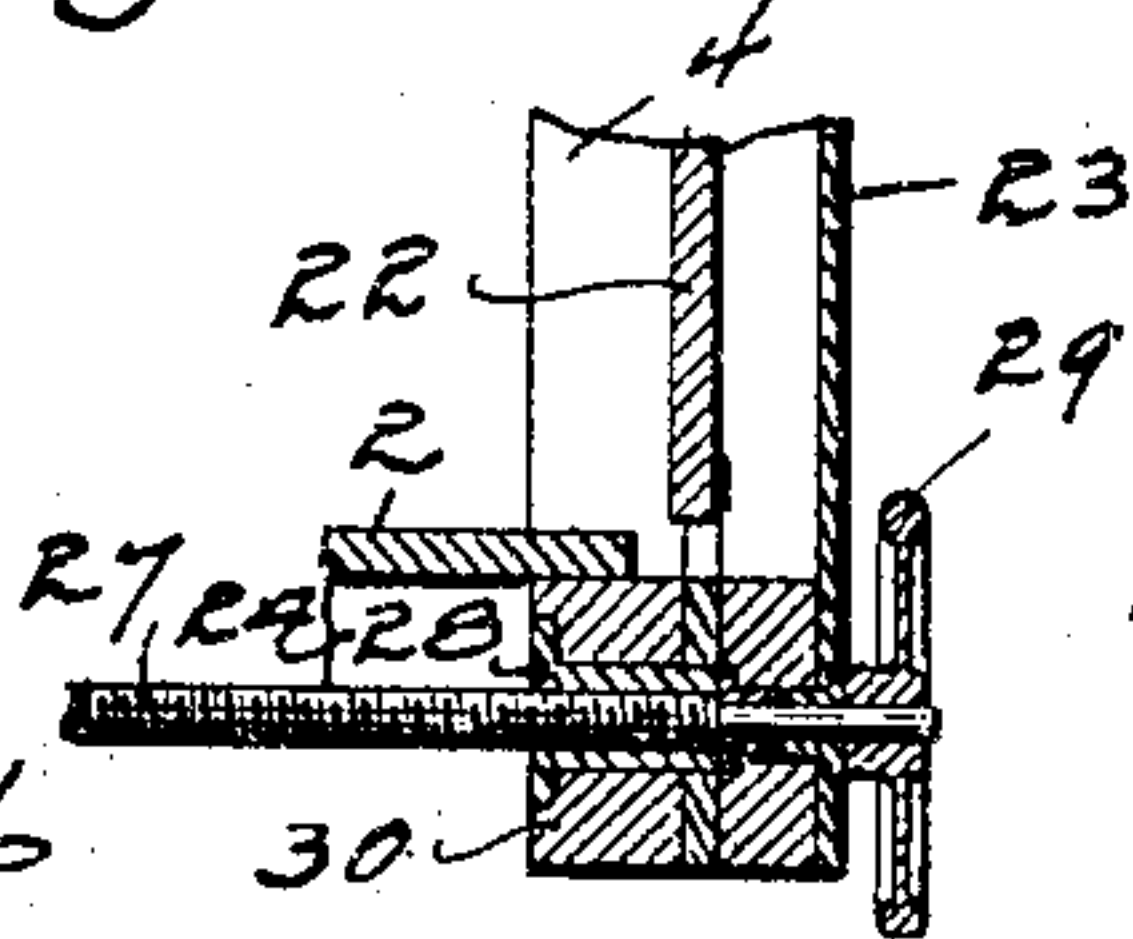


FIG. 6

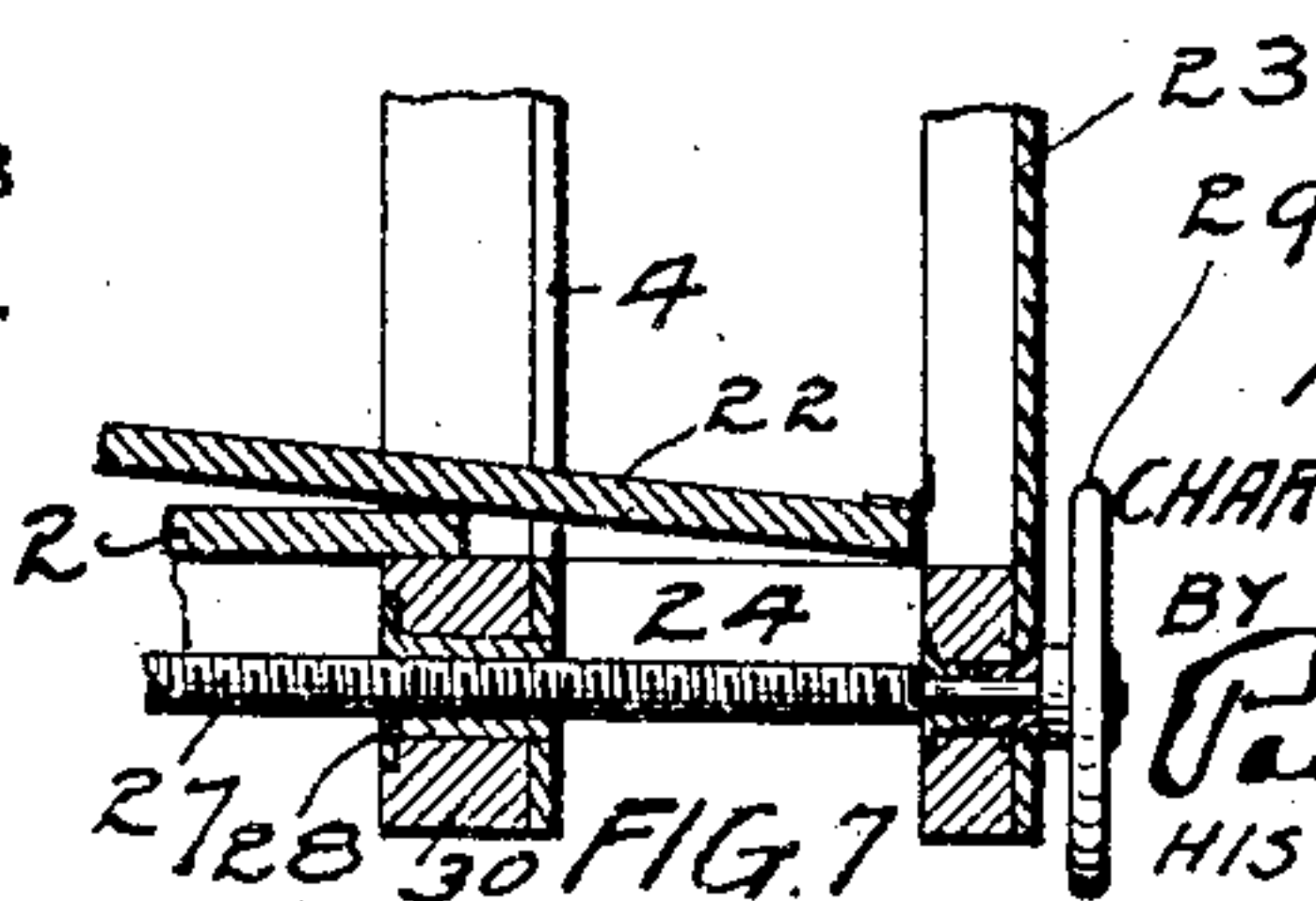


FIG. 7

WITNESSES  
M M - Innes  
M. Hagerty

INVENTOR  
CHARLES A. SMITH  
BY  
*Paul Paul*  
HIS ATTORNEYS



# UNITED STATES PATENT OFFICE.

CHARLES A. SMITH, OF CRANDON, SOUTH DAKOTA.

## PORTABLE FLOUR-MILL.

SPECIFICATION forming part of Letters Patent No. 786,168, dated March 28, 1905.

Application filed June 30, 1904. Serial No. 214,699.

*To all whom it may concern:*

Be it known that I, CHARLES A. SMITH, of Crandon, Spink county, South Dakota, have invented certain new and useful Improvements  
5 in Portable Flour-Mills, of which the following is a specification.

The object of my invention is to provide a portable flour-mill, arranged in a freight-car that is particularly adapted for the purpose,  
10 which can be hauled from place to place over any line of railroad and, being set in on a side track at a way-station or a large town, if desired, can be easily and quickly converted into a modern flour-mill to grind grain for the  
15 surrounding country.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

20 In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a freight-car with its side wall broken away to disclose the location and arrangement of the mill apparatus therein.  
25 Fig. 2 is a vertical transverse section showing the car in its normal condition for transportation. Fig. 3 is a similar view showing the car with its sides expanded and adapted for use as a mill. Fig. 4 is a horizontal section  
30 of one end of the car, showing the location of the expansible side walls. Fig. 5 is a side elevation of the end of the car shown in Fig. 4. Figs. 6 and 7 are details of the mechanism for expanding the side walls.

35 In the drawings, 2 represents a floor or platform of a freight-car supported at one end upon trucks 3 and having the usual side and end walls 4 and 5 and roof 6. Within the car at one end I arrange a grain-bin 7, and  
40 near said bin is a separator 8 of ordinary construction, to which the grain is delivered from said bin by an elevator 9. An engine 10 is mounted on the floor of the car and arranged to drive the separator and connected  
45 by a belt 11 with a pulley 12 upon a line-shaft 13, that is supported in bearings 14.

Beneath the car-platform an elevating device 15 conveys the material from the separator to a conveyer 16, supported beneath the roof of the car and driven from the engine 10  
50 through a shaft 17 and belts 18 and 19. At the other end of the car I have shown a flour-mill 20 of ordinary construction, having a spout connection 21 with the conveyer 16 and driven by a belt 22 from the line-shaft 13. 55

It is not practicable to construct a freight-car above a certain width, and as a mill of this type would take up nearly all the space in the car and render it inconvenient, if not impossible, for the workmen to move around  
60 the mill I therefore provide means for expanding or moving sections of the side walls of the car outwardly to provide ample space around the mill for the attendant. Any suitable mechanism may be provided for moving  
65 the wall-sections in and out; but I may use the one shown in Figs. 2 and 3 of the drawings, which consists in providing the wall-sections 23 with guide-bars 24, that are movable in guides 25, secured to the rafters 26 of  
70 the car. I also provide threaded rods 27, fitting interiorly-threaded bushings 28 and having hand-wheels 29, by means of which said rods can be revolved to move the wall-sections toward or from each other. Any suit- 75  
able number of these rods may be provided; but I have shown four on each side of the car, one at each corner of the wall-sections, where they can be conveniently manipulated  
80 by the mill operators.

The bushings 28 are preferably arranged in the sills 30 at the bottom of the car and in the timbers 31, which extend lengthwise of the car beneath the roof. I prefer to provide a  
85 plate 32 on each side of the car, preferably hinged at its outer edge to the wall-section and normally standing in a vertical position, as indicated in Fig. 2, when the sides of the car are at the limit of their inward movement. When the sides are expanded or moved out to  
90 make room around the mill, the plates 32 will swing down to a horizontal position with their



inner edges resting upon the sills 30 and will form a floor around the mill on the same level as the floor of the car. The movable wall-sections are supported when in their outer position by means of brackets 33, that engage the car-sill and the lower edge of the wall-sections and are adjustable at any suitable height by means of jack-screws 34. If desired, I may by means of these screws raise the brackets sufficiently to lift the entire car off from its springs and relieve the trucks entirely of the weight of the car and its contents. I am thus able to provide a firm substantial base for the mill which will not be affected by the vibration of the machine or rock or tilt with the motion of the engine, which would probably follow if no means were provided for lifting the car-platform away from its springs or cushions. To further steady the car and render it more substantial as a structure for milling purposes, I prefer to provide guy-cables 35, extending from the roof-timbers to suitable anchoring-posts at each side of the track.

As shown in Fig. 3, a space will be formed between the roof-eaves and the movable walls of the car, which may be left open in fair weather and may be covered by a temporary roof or tarpaulin in case of a storm.

A series of conveyers 37 are provided beneath the car operated by a gear mechanism 38, that is driven from the shaft 13 through a plate 39. These conveyers extend out beyond the car at the side into a temporary packing-room 40. This room is erected at the side of the car preparatory to the operation of milling, and the conveyers are also put in place and are made removable, so that they can be adjusted when it is desired to move the car from place to place. The packing-room is built in knockdown form for convenience of transportation.

The manner of using my invention is as follows: The car having been constructed and equipped with a suitable mill is transported to the place where it is desired to commence operations and set in on a siding. The adjustable wall-sections are then moved outwardly, the supports placed in position beneath them, and the car-body jacked up a sufficient distance to relieve the weight on the springs. The guy-ropes are then put in place and the engine having been started the mill is ready to commence grinding. The car will remain at one place as long as the mill can be operated profitably, and then the supporting-brackets and guy-ropes are removed, the walls of the car closed up again, and it is set back on the main track and hauled to the next place where the milling operation is to be performed. In this way a mill is transported from place to place, and thinly-settled sections

of the country and farming communities are given the use of a modern flour-mill and the advantages arising therefrom, which are ordinarily denied to them.

I claim as my invention—

1. The combination, with a box-car, of a flour-mill arranged therein, mechanism for operating said mill, and the side walls of said car opposite said mill being movable laterally with respect to the car to temporarily increase the floor-space around the mill.

2. The combination, with a box-car, of a flour-mill arranged therein, mechanism for operating said mill, the side walls of said car having sections that are movable toward or from each other to vary the width of the car at that point, mechanism for moving said sections, and suitable supports for said sections when they are moved outwardly from the car-body.

3. The combination, with a box-car, of a mill arranged therein, said car having side-wall sections that are adjustable toward or from each other to increase or decrease the width of the car, a suitable mechanism for operating said side-wall sections, brackets provided beneath said sections and engaging the same and the car-sill, and jack-screws for raising said brackets.

4. The combination, with a box-car, of a flour-mill arranged in one end thereof, a line-shaft suspended beneath the car-platform and having a pulley and a belt connection with said mill, a grain-bin in the opposite end of the car, a separator, and an engine connected with said separator and with the line-shaft, and suitable conveyers connecting said separator with the grain-bin and with said mill, substantially as described.

5. The combination, with a box-car, of a mill located therein, mechanism for operating said mill, the side walls of said car opposite said mill having sections that are adjustable horizontally toward and from each other to increase or decrease the floor-space around the mill, mechanism for operating said sections, and plates hinged at their lower edges to said sections and arranged to swing inwardly when said sections are moved out and cover the space between them and the car-floor.

6. The combination, with a box-car, of a flour-mill arranged in one end thereof, the sides of said car having sections that are movable horizontally toward and from each other to increase or decrease the floor-space around the mill, mechanism for operating said movable sections, a line-shaft suspended beneath the car-platform, an engine mounted on said platform, pulley-and-belt connections provided between said line-shaft and said mill, a bin, a grain-separator connected with said en-

gine and bin, and suitable conveyers connecting said separator with said bin and with said mill.

7. The combination, with a box-car, of a  
5 flour-mill arranged in one end thereof, a line-  
shaft suspended beneath the car-platform, an  
engine mounted on said platform, operative  
connections provided between said shaft and  
said engine and said mill, a grain-bin, a grain-  
10 separator operatively connected with said en-

gine and said bin, and suitable conveyers leading from said bin to said separator and from said separator to said mill.

In witness whereof I have hereunto set my hand this 17th day of June, 1904.

CHARLES A. SMITH.

In presence of—

WM. ISSENHUTH,  
H. T. WARNOCK.