

A. I. & C. C. SYVERSON.
BINDER.

APPLICATION FILED JAN. 13, 1910.

966,268.

Patented Aug. 2, 1910.

3 SHEETS—SHEET 1.

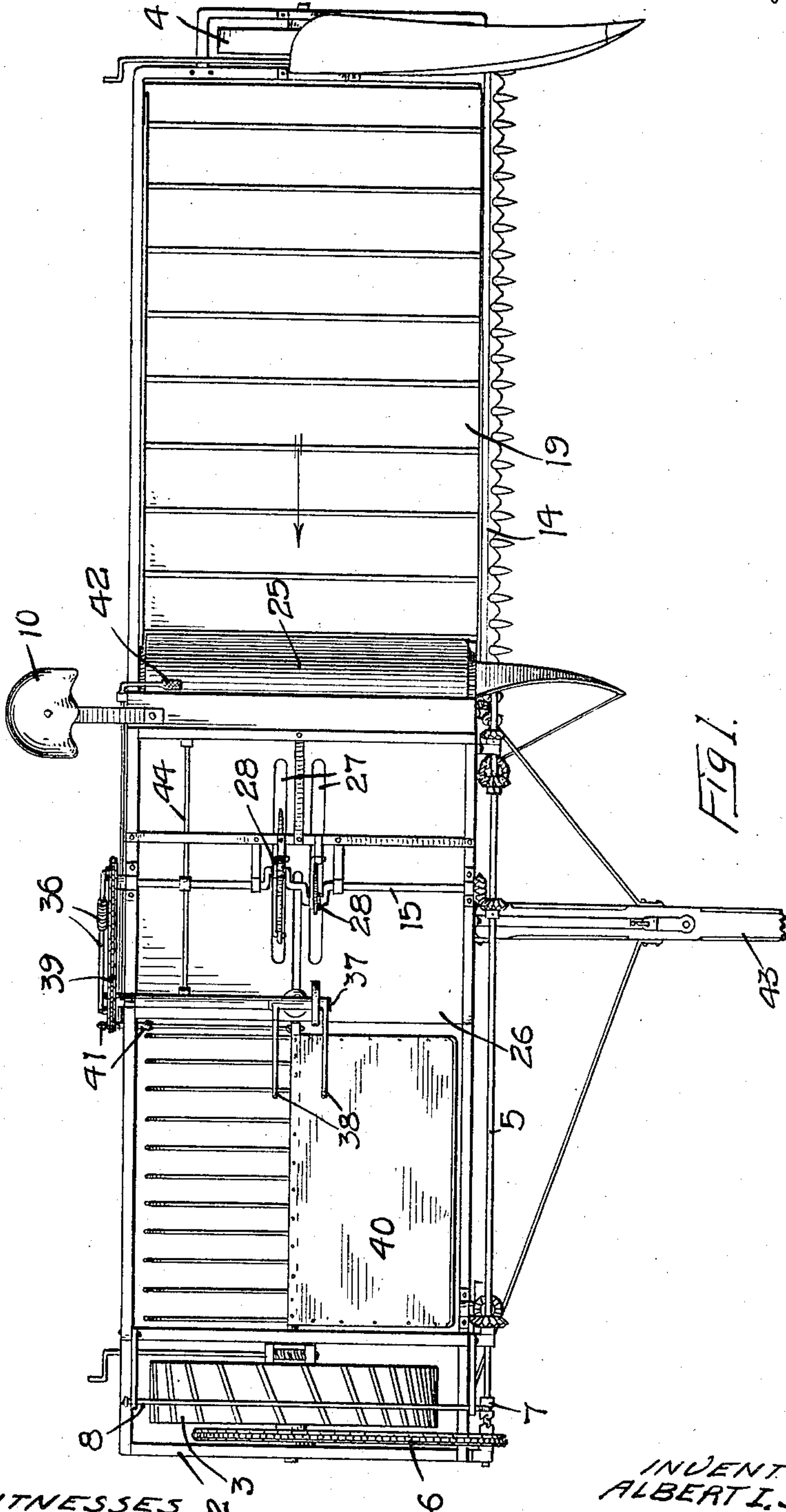


FIG. 1.

WITNESSES
Amundson
J. R. Rington

INVENTORS
ALBERT I. SYVERSON
CORNELIUS C. SYVERSON
BY *Paul & Paul*
ATTORNEYS

966,268.

A. I. & C. C. SYVERSON.
BINDER.
APPLICATION FILED JAN. 13, 1910.

Patented Aug. 2, 1910.

3 SHEETS—SHEET 2.

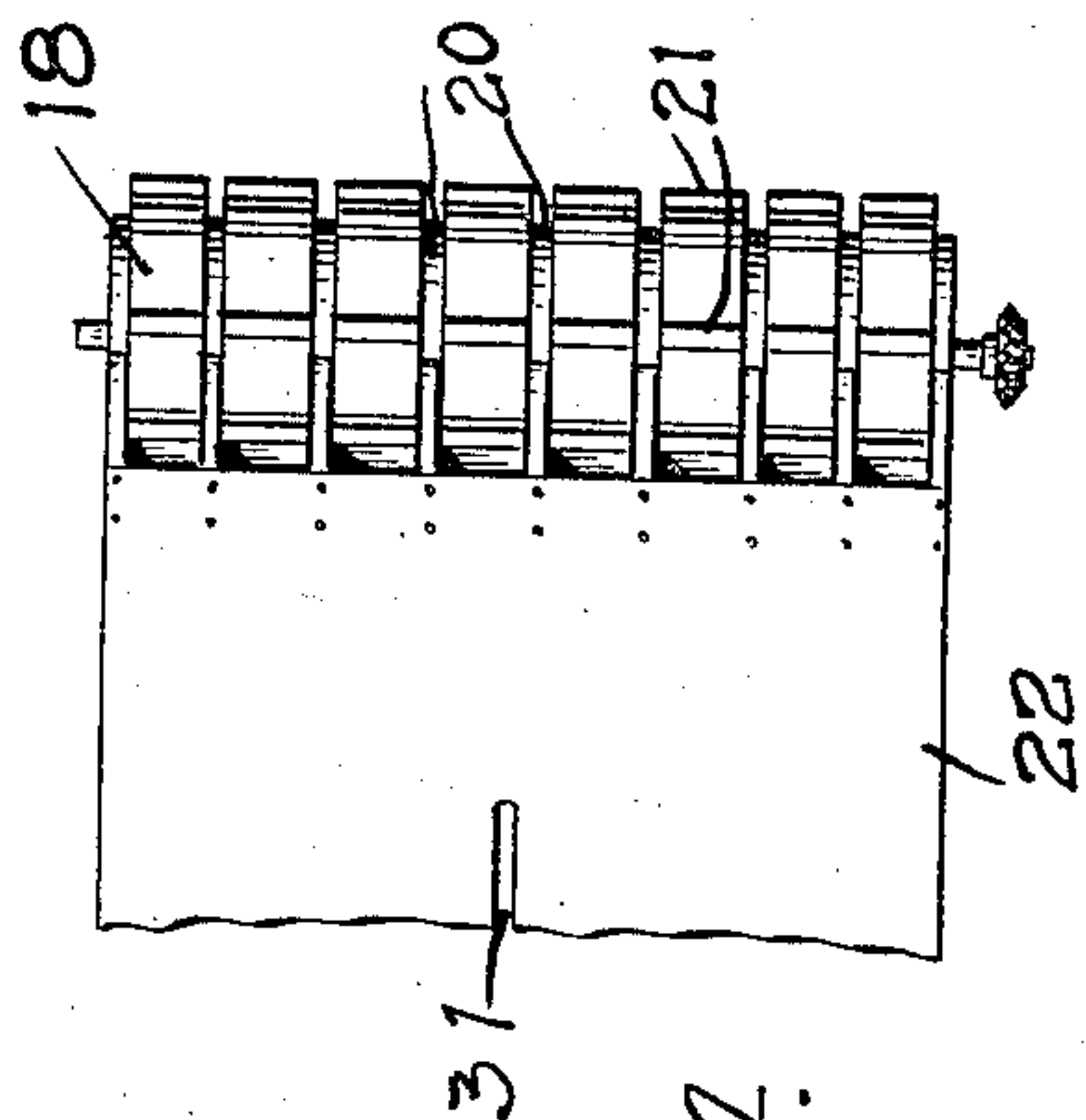


Fig. 4.

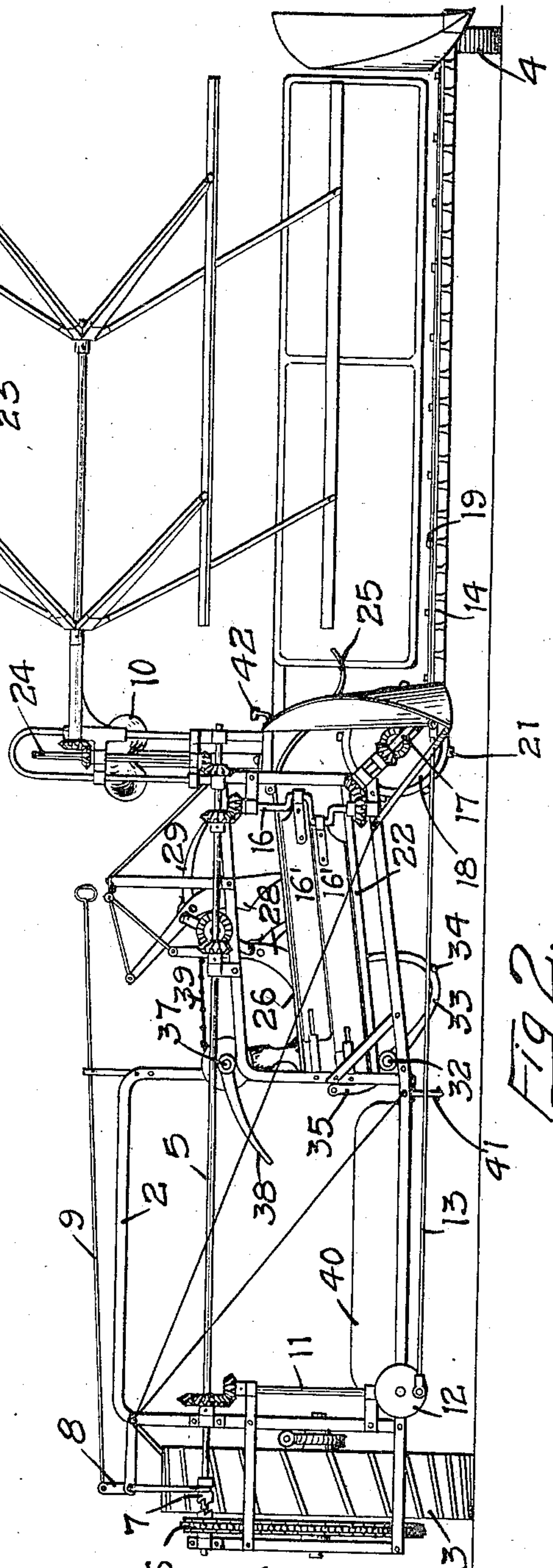


Fig. 2.

WITNESSES
W. H. Abstrom
J. A. Byington

6 INVENTORS
ALBERT I. SYVERSON
CORNELIUS C. SYVERSON
BY *Paul & Paul*
ATTORNEYS

966,268.

A. I. & C. C. SYVERSON.
BINDER.
APPLICATION FILED JAN. 13, 1910.

Patented Aug. 2, 1910.
3 SHEETS—SHEET 3.

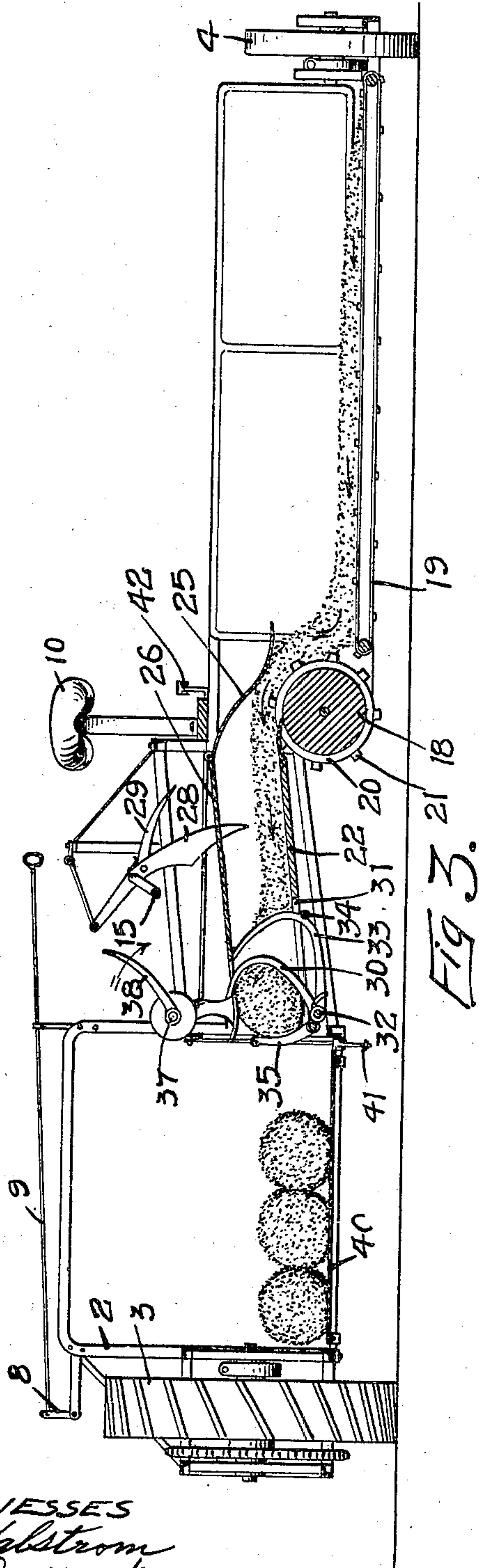


Fig 3.

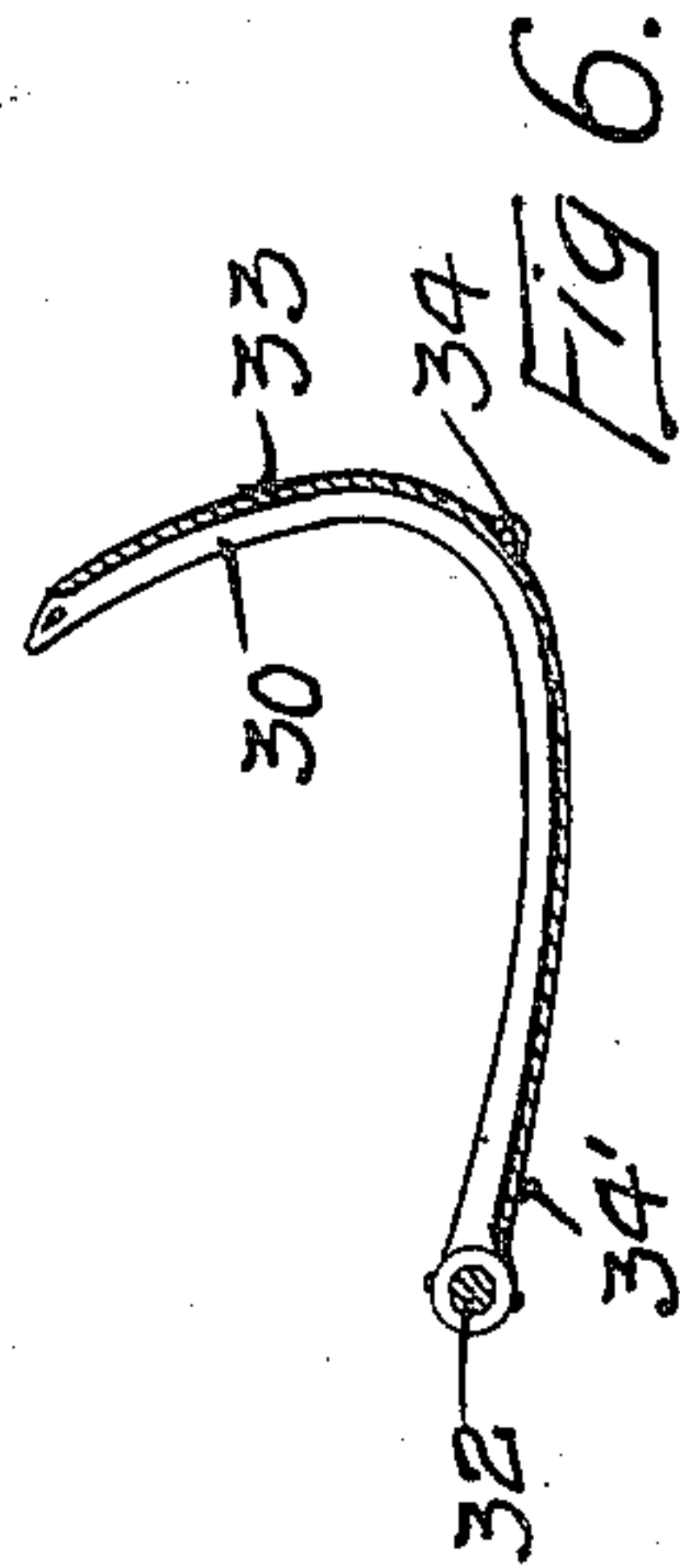


Fig 6.

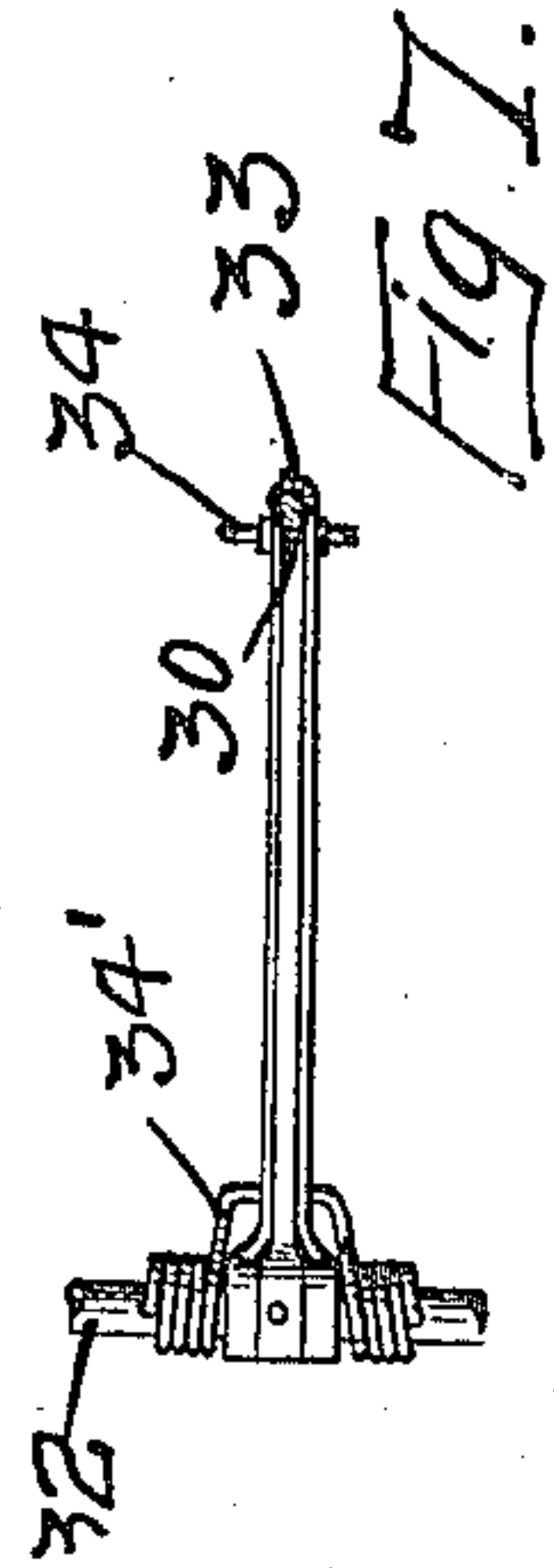


Fig 7.

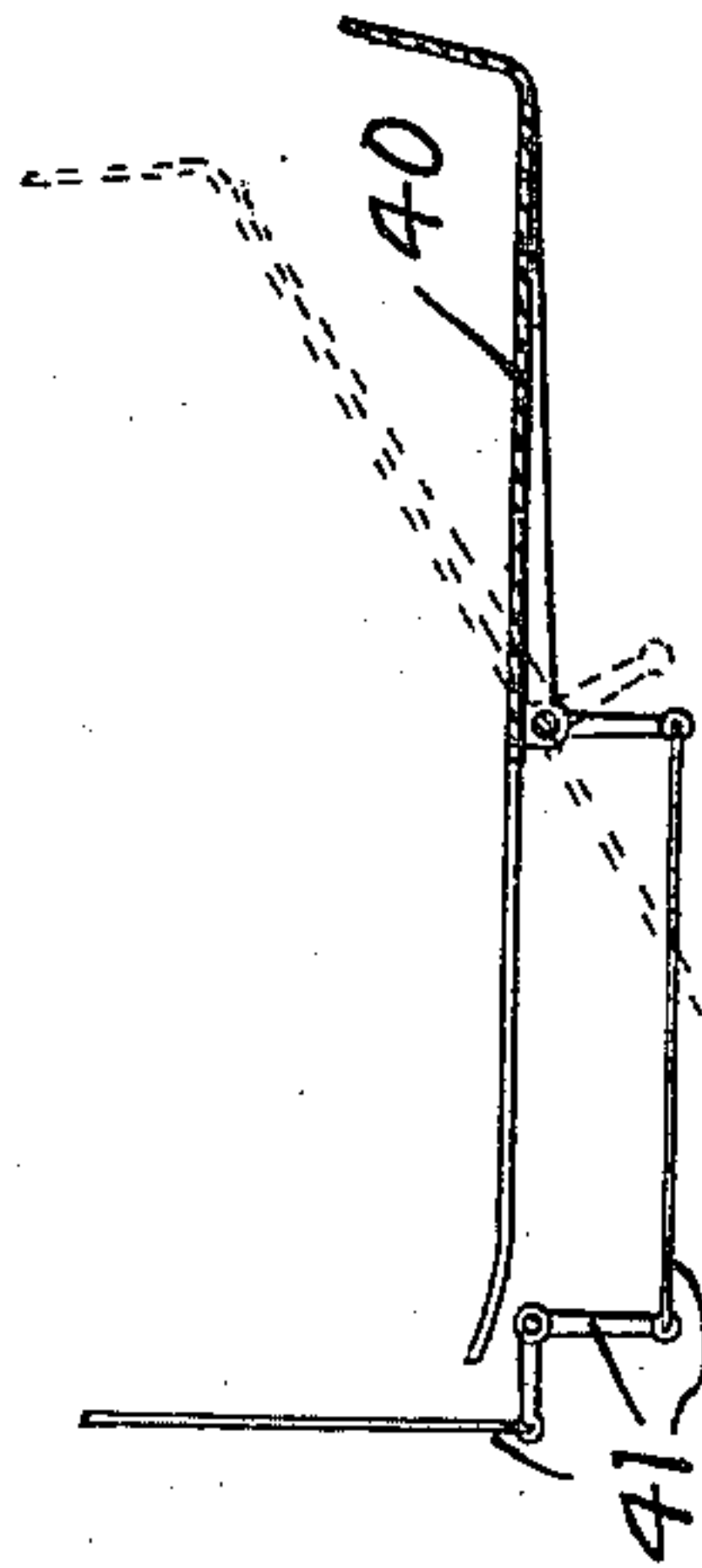


Fig 5.

WITNESSES
Amundson
J. B. Byington.

INVENTORS
ALBERT I. SYVERSON
CORNELIUS C. SYVERSON
BY *Paul & Paul*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBERT I. SYVERSON AND CORNELIUS C. SYVERSON, OF PELICAN RAPIDS, MINNESOTA.

BINDER.

966,268.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed January 13, 1910. Serial No. 537,823.

To all whom it may concern:

Be it known that we, ALBERT I. SYVERSON and CORNELIUS C. SYVERSON, of Pelican Rapids, Ottertail county, Minnesota, have invented certain new and useful Improvements in Binders, of which the following is a specification.

Our invention relates to grain binders and the object is to provide a more stable machine and simplify the construction of a binder by eliminating entirely the usual elevating aprons and their connections.

A further object is to provide a binder in which practically all side draft is eliminated.

A further object is to provide a machine in which the waste of grain in the formation of the bundle will be reduced to a minimum.

A further object is to provide a binder in which many of the driving chains usually employed are omitted, thereby insuring a more uniform movement and avoiding the taking up of the slack in the chains before starting the binder.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in a conveyer belt, a grain table and a roll, operating to deliver the grain from said belt to said table.

Further the invention consists in a bundle carrier, located contiguous to the grain table, between the table and the drive wheel.

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

In the accompanying drawings forming a part of this specification, Figure 1 is a plan view of a binder embodying our invention, Fig. 2 is a front elevation of the same, Fig. 3 is a transverse sectional view showing the movement of the grain through the binding apparatus, Fig. 4 is a detailed view of a portion of the grain table and the delivering roll, Fig. 5 is a detailed sectional view of the bundle carrier, Figs. 6 and 7 are detailed views of the combined needle guard and grain retarder.

In the drawing, 2 represents a frame provided at one end with a traction wheel 3 and at the other end with a supporting grain wheel 4. A shaft 5 is mounted to extend lengthwise of this frame and is driven through a chain belt 6 from the traction wheel 3. A clutch 7 controls the operation of this shaft and is manipulated by means of a crank 8 and a rod 9 which extends pref-

erably to a point near the driver's seat 10. The shaft 5 is geared to an upright shaft 11 which drives a crank disk 12 connected by a pitman rod 13 with the cutter bar 14. The shaft 5 is also geared to a transverse crank shaft 15 which operates the packer arms, as will hereinafter appear, and an upright crank shaft 16 is geared to the shaft 5 at its upper end, and at its lower end is geared to a shaft 17, which is inclined to the horizontal and has a driving connection with a roll 18 and with the horizontal apron or grain conveyer 19. This grain conveyer operates in the rear of the cutter bar in the usual way, and has slats thereon and receives the grain and moves it laterally toward the grain elevating roll. This roll has preferably a series of annular grooves 20 in its periphery, with slats 21 extending lengthwise of the roll at intervals between the grooves. The grain is picked up by these slats and delivered to the inclined grain table 22, which is preferably provided at its receiving end with a series of fingers projecting into the grooves 20.

The usual type of reel 23 is arranged above the grain conveyer, having a driving connection through an upright shaft 24 with the horizontal shaft 5. A curved plate 25 is pivoted above the grain table and adapted to rest on the stream of grain and hold it down upon the revolving grain roll. The upright shaft 16 carries the butt evener plates 16', which are usually found in machines of this kind. A floor 26 is provided above the grain table having slots 27 therein in which packer arms 28, carried by the crank shaft 15, are adapted to operate. Upon these packer arms, spring pressed fingers 29 are preferably pivoted and are adapted to operate through the slots of the floor 26 and follow the stroke of the packers. A needle 30 is mounted below the grain table and oscillates through a slot 31 therein, and has a shaft 32 on which a guard 33 is mounted and capable of vertical oscillation with the needle for a limited distance. A stop 34 is carried by said guard and engages the edges of the slot 31, thereby preventing the guard from following the needle to the end of its stroke, but permitting the guard to swing into the path of the grain on the table and act as a retarding means during the tying of the bundle. A spring 34' is provided to yieldingly resist downward movement of the guard 33.

A trip arm 35 has a mechanism 36 operatively connecting it with the crank shaft 15 at one side of the machine, and when the pressure against the trip arm is sufficient to overcome the resistance of the mechanism connected therewith, the arm will drop, releasing the bundle and permitting it to be discharged from the grain table.

Any ordinary form of knotter may be employed in connection with this machine and we have not thought it necessary to illustrate a detailed form herein. In fact, the packing, tying and discharging of the bundles of grain is accomplished in substantially the same manner as in an ordinary binder, our invention relating particularly to the elimination of the usual elevating belts and the operating mechanism therefor. A shaft 37 is mounted above the trip arm and carries discharging arms 38, said shaft being revolved from the crank shaft 15 through a chain belt 39. The movement of this shaft is timed to discharge the bundles of grain from the table onto the bundle carrier, which we prefer to locate contiguous to the grain table and between it and the traction wheel 3. This bundle carrier consists of the usual tilting table 40 and is operatively connected through a mechanism 41 with a treadle 42. By pressure on this treadle, the operator can discharge the bundles of grain when a sufficient number have been accumulated to form a shock.

From the foregoing description, it will be noted that the main feature of novelty in this machine is the revolving grain roll which serves to elevate the stream of grain sufficiently above the ground line to allow for the operation of the needle, but without raising the grain so far as to render the machine unstable, particularly on uneven ground, or permit the shaking out of a considerable portion of the grain through the pressure of the canvas aprons thereon. The packing and knotting mechanisms are similar to those in general use, their location being changed and novel means being provided for retarding the grain instead of utilizing the heel of the needle for that purpose.

The draft pole 43, as shown in Fig. 1, is located preferably a little to one side of the center of the machine and with this arrangement, the objectionable side draft usually found in binders, is almost entirely eliminated. Furthermore, we are able to locate the bundle carrier between the carrying wheels of the machine at a point where it can receive the bundles of grain conveniently from the grain table and where its operation can be easily controlled by the driver. Above the grain table we prefer to arrange a device 44 that is adjustable for-

ward and back on the grain table, to adapt it for grain of different lengths. This, however, is usually found in an ordinary binder.

We have not attempted in the drawing or specification to illustrate or describe details of construction and the mechanism for operating certain parts of the machine, as we regard these details as unimportant and unnecessary to the proper understanding of the present invention. It will be understood that in building a machine such parts will be utilized as are found necessary in an ordinary binder to successfully accomplish the packing and tying operations.

We claim as our invention:

1. In a binder, a cutter bar, a conveyer belt operating in the rear thereof, a grain table, an elevating roll disposed between said belt and said table and having annular grooves therein and slats arranged lengthwise of said roll at intervals between said grooves and adapted to pick up the grain from said belt, said grain table having fingers projecting into said grooves, and packing and tying mechanisms.

2. In a binder, a cutter bar, a grain conveyer belt operating in the rear thereof, a grain table, an elevating roll disposed between said grain table and said belt and adapted to pick up the grain from said belt, said roll having annular grooves therein, and said table having fingers projecting into said grooves, for the purpose specified.

3. A binder comprising a frame having carrying wheels, a cutter bar, a grain conveying belt operating horizontally in the rear of said bar, an elevating roll disposed close to said belt and transversely with respect thereto and adapted to pick up the grain and elevate it, a grain table located near the ground line on the discharge side of said roll to receive the grain therefrom, a floor arranged above said grain table, packer arms operating through said floor, and a tying mechanism disposed between said floor and table, for the purpose specified.

In witness whereof we have hereunto set our hands, ALBERT I. SYVERSON at Pelican Rapids, Ottertail county, Minnesota, this 28th day of December, 1909, and CORNELIUS C. SYVERSON at Wapato Yakima county, Washington, this 3rd day of Jany. 1910.

ALBERT I. SYVERSON.

CORNELIUS C. SYVERSON.

Witnesses to the signature of Albert I. Syverson:

CECELEE SHERIN,

O. P. SETHIER.

Witnesses to the signature of Cornelius C. Syverson:

D. W. GEARHEAR,

B. SCHMIDT.