Jan. 23, 1951 F. O. ZICKERMAN 2,539,359

GRAIN STACKING MACHINE

Filed Jan. 27, 1947 3 Sheets-Sheet 1

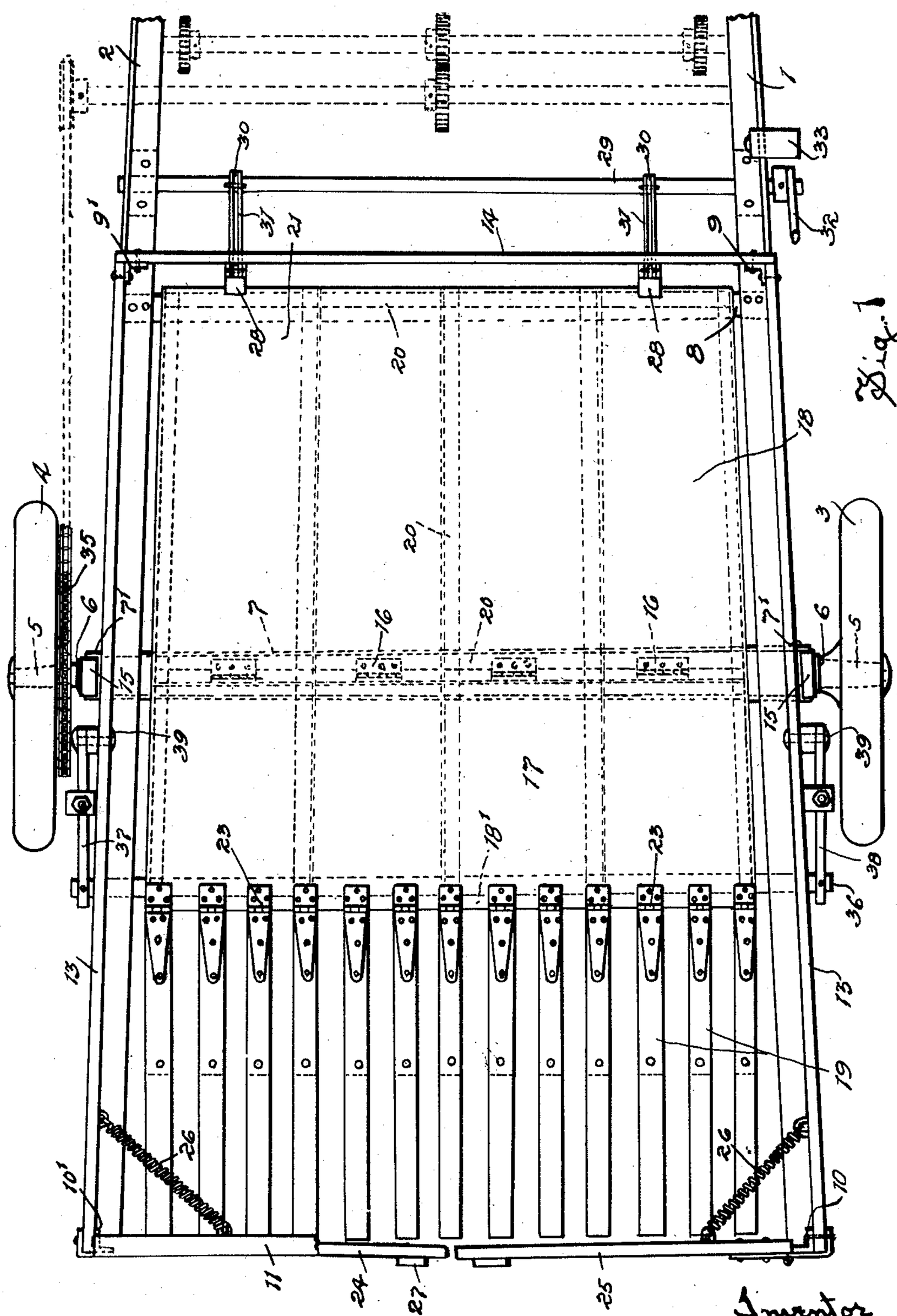

Fig. 1

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3 Sheets-Sheet 2

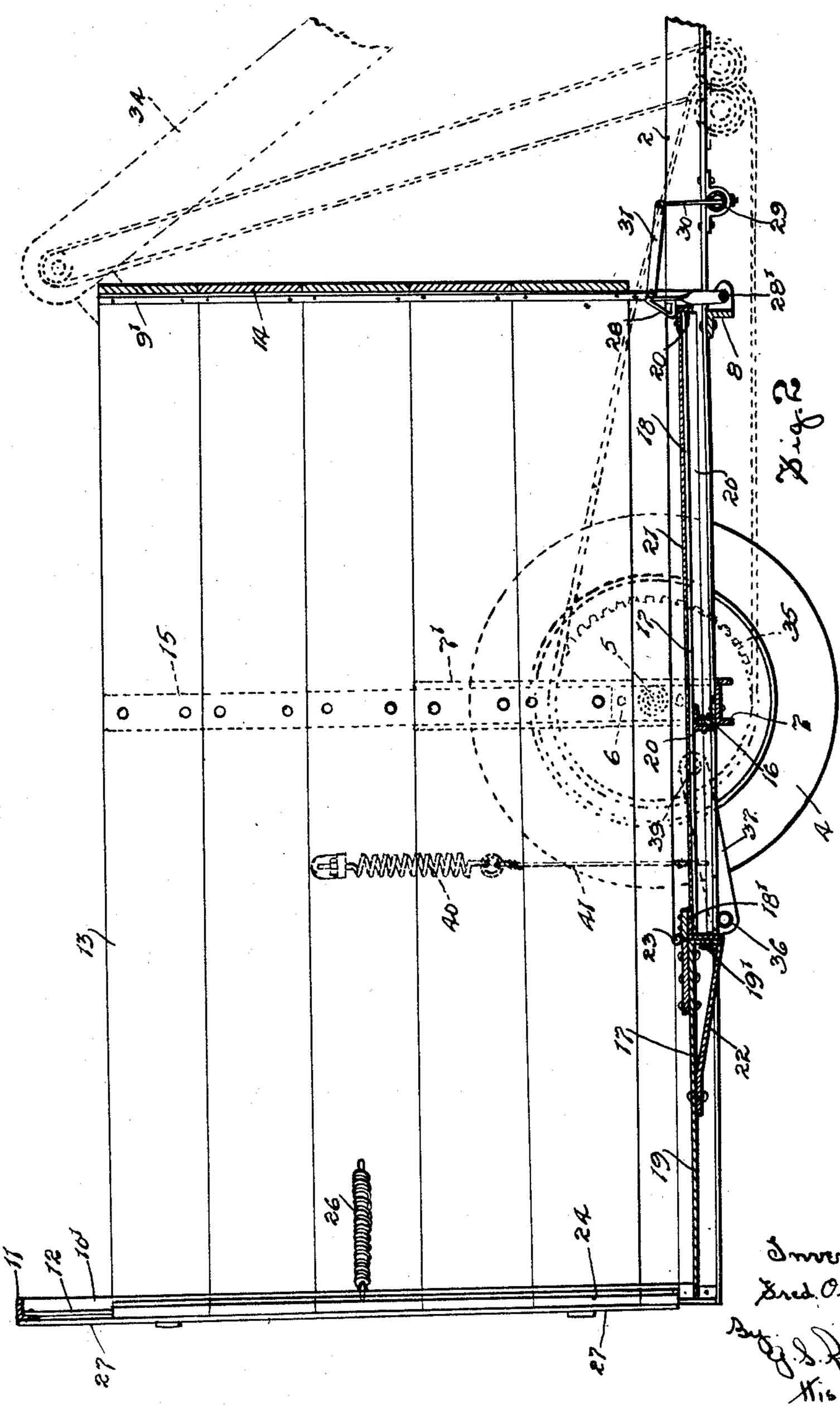

Fig. 2

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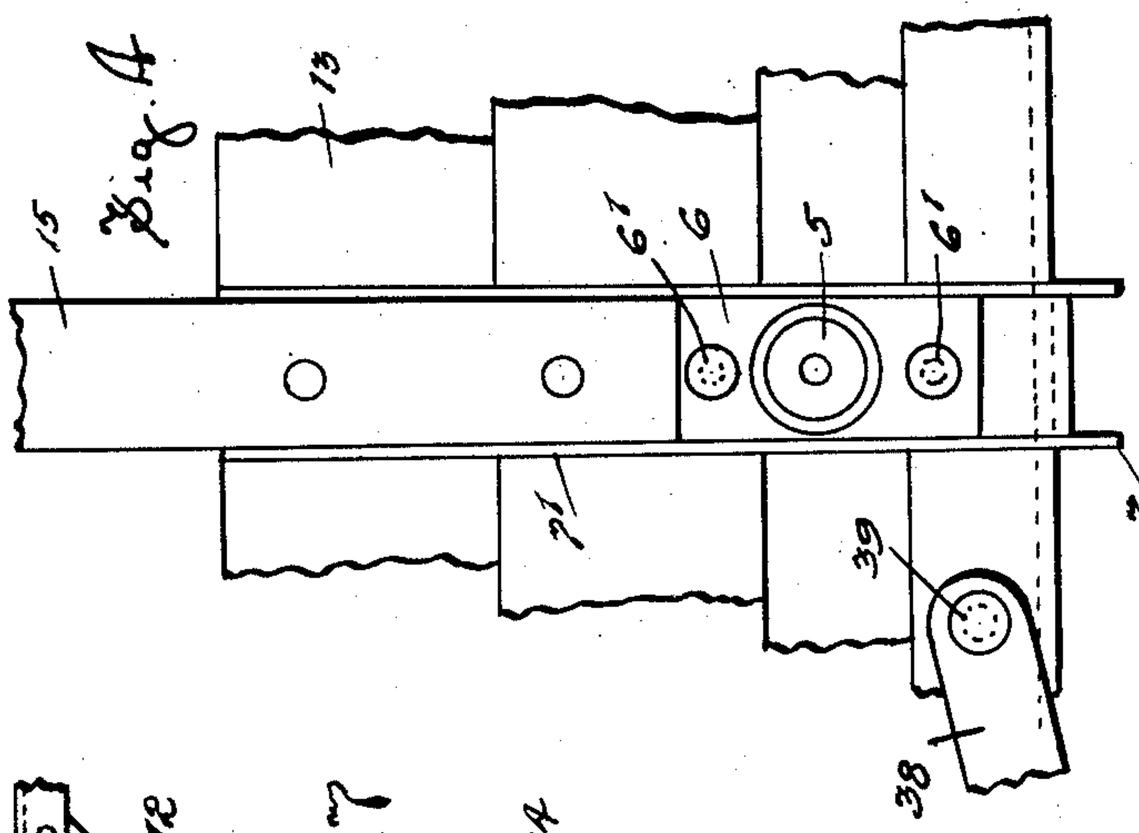

Fig. 4

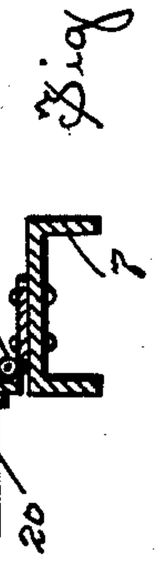

Fig. 8

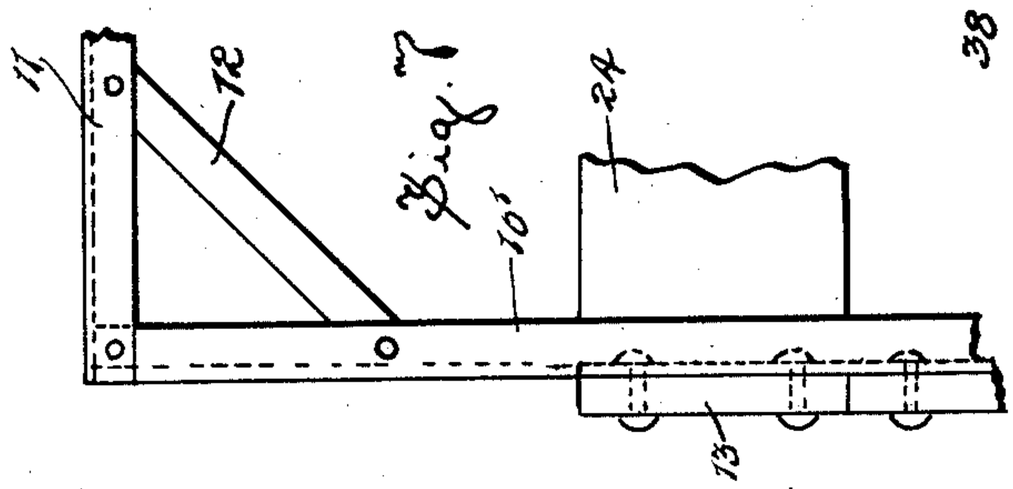

Fig. 7

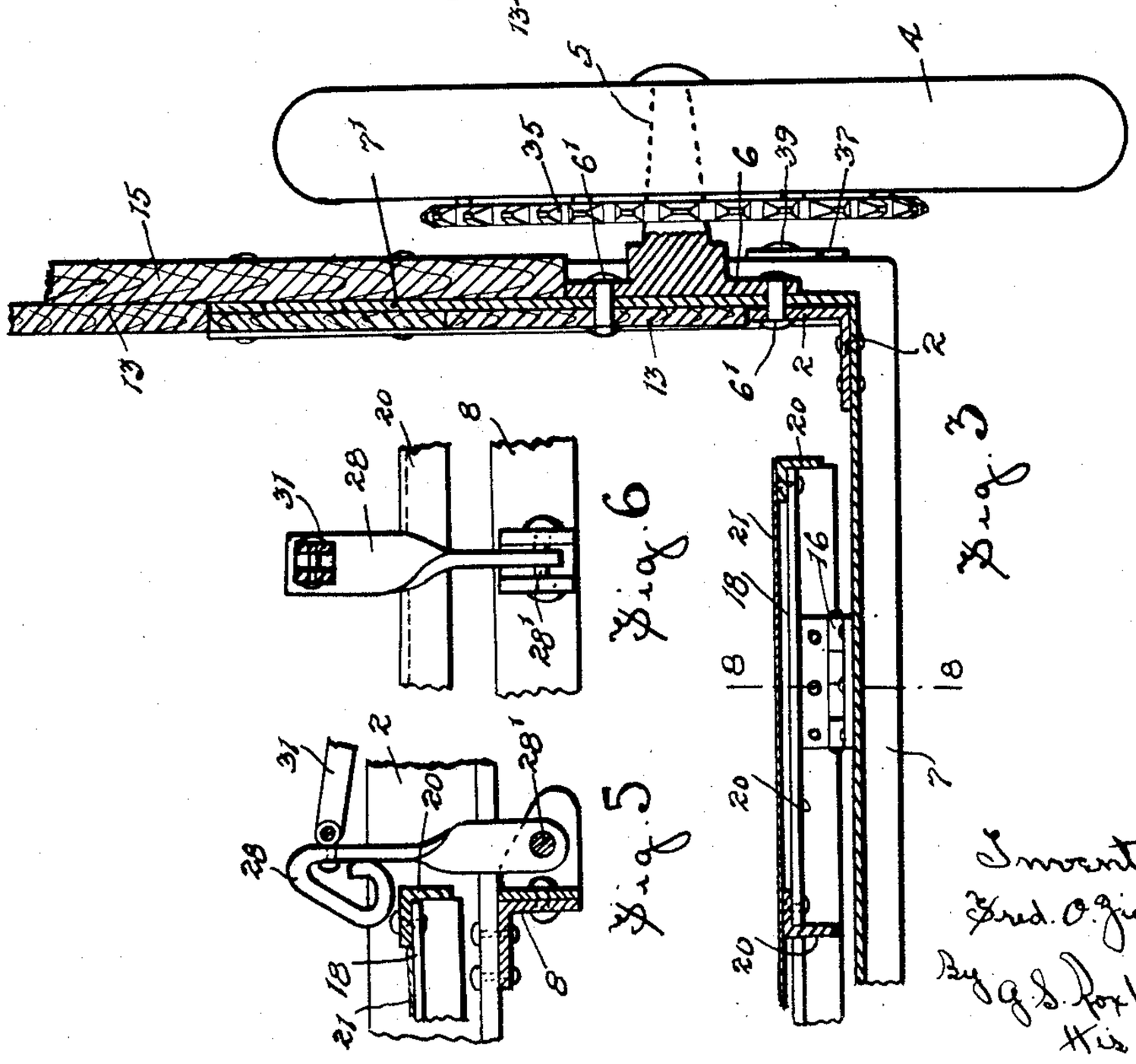

Fig. 3

Fig. 6

Fig. 5

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UNITED STATES PATENT OFFICE

2,539,359

GRAIN STACKING MACHINE

Frederick O. Zickerman, Winnipeg, Manitoba, Canada

Application January 27, 1947, Serial No. 724,512
In Canada February 20, 1946

4 Claims. (Cl. 298—26)

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The invention relates more particularly to means for gathering grain, hay or like material and forming it into a stack, and subsequently dumping the formed stack on the field, in an upstanding position.

One important feature of the invention resides in a holder or receptacle in which the stack is built, and the provision of novel, simple and effective means for discharging the formed stack from the receptacle onto the ground in standing position.

A further feature is the provision of a novel tiltable platform normally closing the bottom of the receptacle and embracing a table and hinged fingers attached thereto and operating when actuated to effectively discharge the stack formed thereon on the ground.

Other objects and advantages will appear as the description proceeds and the novel features will be pointed out in the appended claims.

The invention is illustrated in the accompanying drawings in which

Fig. 1 is a plan view of the grain loader and with the elevator driving connections shown in dotted outline.

Fig. 2 is a vertical sectional view, centrally and longitudinally through the machine.

Fig. 3 is an enlarged, detailed vertical sectional view centrally through a portion of the main axle of the machine, and associated parts, the supporting wheel appearing in side elevation.

Fig. 4 is a face view of the parts appearing in Fig. 3, the wheel having been removed.

Fig. 5 is a side view of the locking latch and associated parts.

Fig. 6 is a front view of the locking latch and associated parts.

Fig. 7 is a detailed view of a portion of the rear end of the machine and showing the top cross bar and angle brace.

Fig. 8 is a vertical sectional view at 8—8, Fig. 3.

In the drawings like characters of reference indicate corresponding parts in the several figures.

The present invention relates to that part of a grain loader, which receives the grain to form a stack and subsequently discharges the formed stack on the ground, and I have not herein shown the customary forward castor or other such wheels for supporting the forward end of the main frame of the machine as such are well known and are in common use. Further, I have not described in detail the customary elevator for elevating the cut grain into the basket or stack forming receptacle as such elevators are also well known in the art.

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The main frame of the machine presents similar, forwardly converging side beams 1 and 2 which have their forward ends supported by suitable castor wheels not herein shown, and their rear ends supported by the ground wheels 3 and 4 herein appearing. The wheels 3 and 4 are carried rotatably on spindles 5 extending from similar blocks 6 which are bolted at 6' to upstanding side arms 7' forming continuations of the horizontal axle 7. The latter bolts pass also through the side boards later referred to.

Somewhat in advance of the axle the side beams are connected by cross bar 8, and vertical front and rear pairs of corner posts 9 and 9', 10 and 10' are permanently bolted to the vertical flanges of the side beams, the posts 10 and 10' being connected by an elevated cross bar 11, reinforced by angle braces 12.

Side boards 13 connect the front and rear pairs of corner posts and front boards 14 connect the front pair of corner posts. The side boards are fastened centrally, also to vertical bars 15 secured to the upstanding arms 7'.

To the axle 7 I have pivotally connected, as by hinges 16 a dumping platform 17 which is normally locked in a substantially horizontal position by latches later described and comprises a forward table 18 and rear pivoted spaced fingers 19.

The table 18 is formed from an under frame structure of transverse and longitudinal angle bars 20 suitably riveted together and such structure is covered over with a sheet metal plate 21.

The fingers 19 are all similar being formed from flat stiff bars having their front ends turned down to provide vertical stops 19' engaging normally with the rear angle bar 18' of the table 18 and maintaining the fingers normally in the horizontal plane of the table.

Brace bars 22 are provided to reinforce the fingers as shown, and the fingers are each pivotally attached to rear end of the table by similar hinges 23.

Similar gates 24 and 25 are hingedly secured to the rear corner posts and are held normally closed, across the rear end of the machine, by springs 26, supplied, each gate being equipped with a striker bar 27 normally engaging the elevated cross bar 11.

The platform 17 is designed and pivoted so that the rear heavier end has a natural tendency to gravitate groundward and it is held normally in the horizontal position shown, by similar latches 28 pivotally attached at 28' to the cross bar 8, and engageable with the front end of the table. A cross shaft 29 is rotatably carried

by the forward ends of the side beams 1 and 2 and such shaft has vertical cranks 30 fastened thereto, which are connected by suitable links 31 to the latches. An operating lever 32 is secured to the shaft 29 and when shifted forwardly, simultaneously disengages the latches and permits the platform to tilt rearwardly. A stop bar 33 is permanently secured to the beam 1 and limits the forward travel of the lever.

The latches are so designed that in the return of the table to horizontal position, the forward end thereof will escape past the latches and become caught thereunder, as will be readily understood.

It will be seen from the above description that the major parts herein described form a receptacle or basket in which a stack of grain can be built, the stack being contained between the side boards, front boards and rear gates, and resting on the normally locked platform.

The grain can be delivered into the receptacle by the well known driven elevator 34 which is herein shown in Fig. 1 in dotted outline, but is not described in detail, as it forms no part of the present invention. Provision is made for driving such an elevator by supplying one of the ground wheels, with a chain wheel 35.

When a stack has been built in the receptacle an attendant actuates the lever 32 to release the latches and effect the depositing of the formed stack on the ground. It will be here observed that as the platform tilts, the fingers first engage the ground or stubble and are free to break joint at the hinges 23.

The rear ground engaging portion of the built stack then causes the stack to withdraw from the receptacle as the machine advances, it being understood that the gates open under pressure of the then deposited stack.

Once the stack has been deposited the gates close under pressure of their springs, and to insure of the positive subsequent return of the platform to its initial position I have provided the parts now described.

A lifting bar or rod 36, is located directly underneath the rear end of the table and is carried by two similar side arms 37 and 38 which are pivotally attached at 39 to the side beams 1 and 2 of the main frame. Adjustable springs 40 are anchored to the side boards of the machine and are connected by cables or lines 41 to the side arms. The arrangement is such that the springs are extended when the table is released and tilts under the weight of the stack, and accordingly upon the discharge of the stack, said springs operate to return the platform to its original position. It is here explained that during the latter dumping movement, the rod 36 is free to slide along the underside of the table.

While I have entered into a detailed description of the various parts, it will be understood that they may be materially modified without departing from the spirit of the invention as set forth in the accompanying claims.

What I claim as my invention is:

1. In a grain stacking machine, in combination a wheel supported grain receiving receptacle having the top, rear and bottom open, gates closing the rear end of the receptacle, a platform normally closing the open bottom of the receptacle, said platform comprising a forward table and rearward fingers hinged thereto to break joint upwardly and said table being pivoted to dump rearwardly upon the platform being loaded, means releasably locking the table against dumping and means for returning the dumped platform to its original position.

2. In a grain stacking machine a wheel supported, stack forming receptacle having an open bottom normally closed by a load supporting platform, said platform comprising a forward, normally releasably locked table pivoted intermediately of its length for rearward dumping and rearwardly extending, spaced fingers hinged to the rear of the table to break joint upwardly in the dumping of the table.

3. The device as claimed in claim 2 wherein means is provided to automatically return the platform to its original position after dumping and wherein the locking means automatically locks the returned platform in its normal position.

4. A stack forming receptacle having the bottom thereof provided with a normally horizontal platform on which the stack is built, said platform comprising a forward, rearwardly tiltable table and spaced fingers hingedly secured to the rear end of the table and normally held in the plane of the table but free to swing upwardly in the titling of the table, a cross member underlying and engaging the underside of the rear end of the table and carried by forwardly pivoted side bars and adjustable lifting springs secured to the side bars.

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