

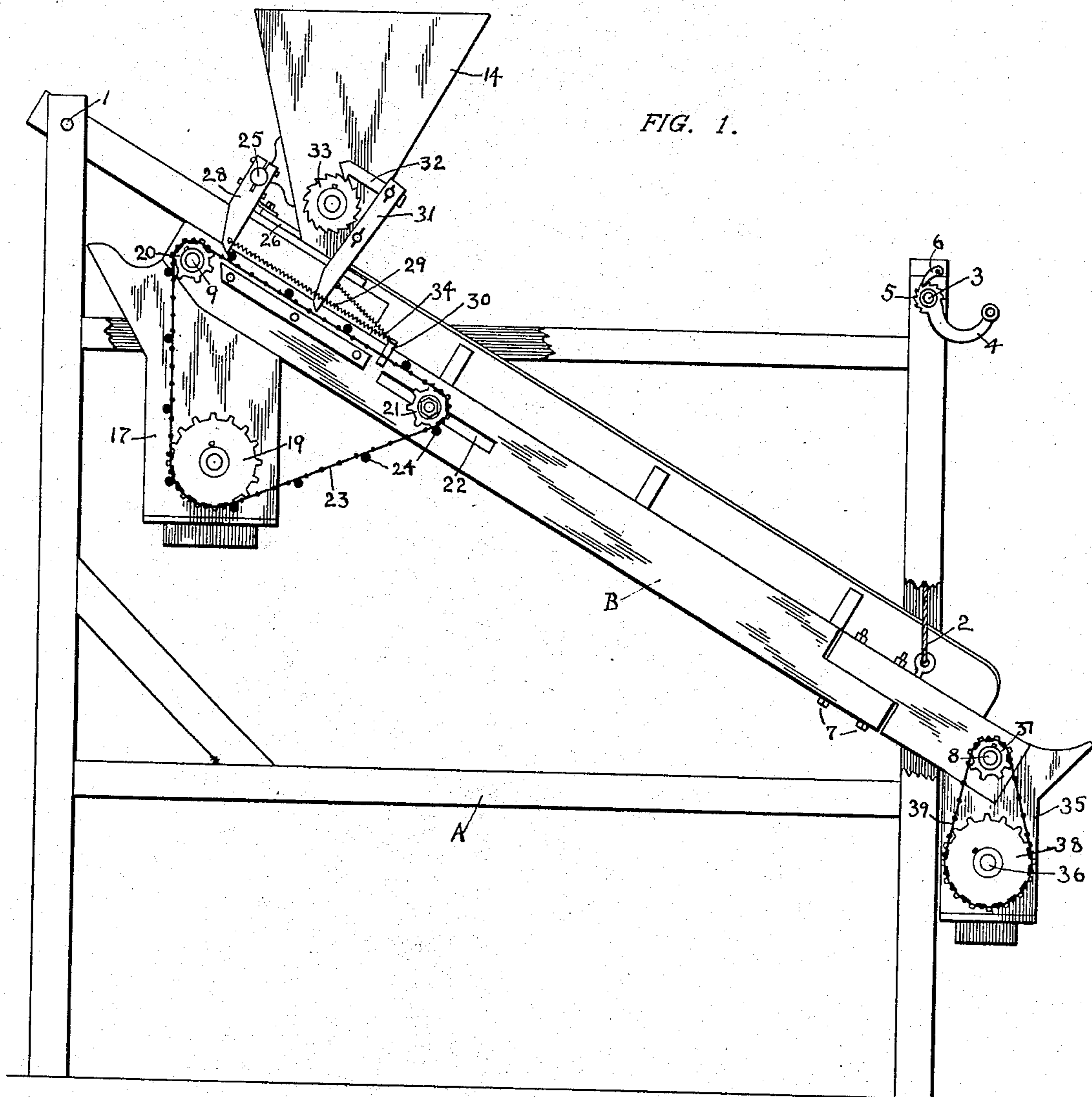
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APPLICATION FILED MAR. 30, 1909.

930,853.

Patented Aug. 10, 1909.

3 SHEETS—SHEET 1.



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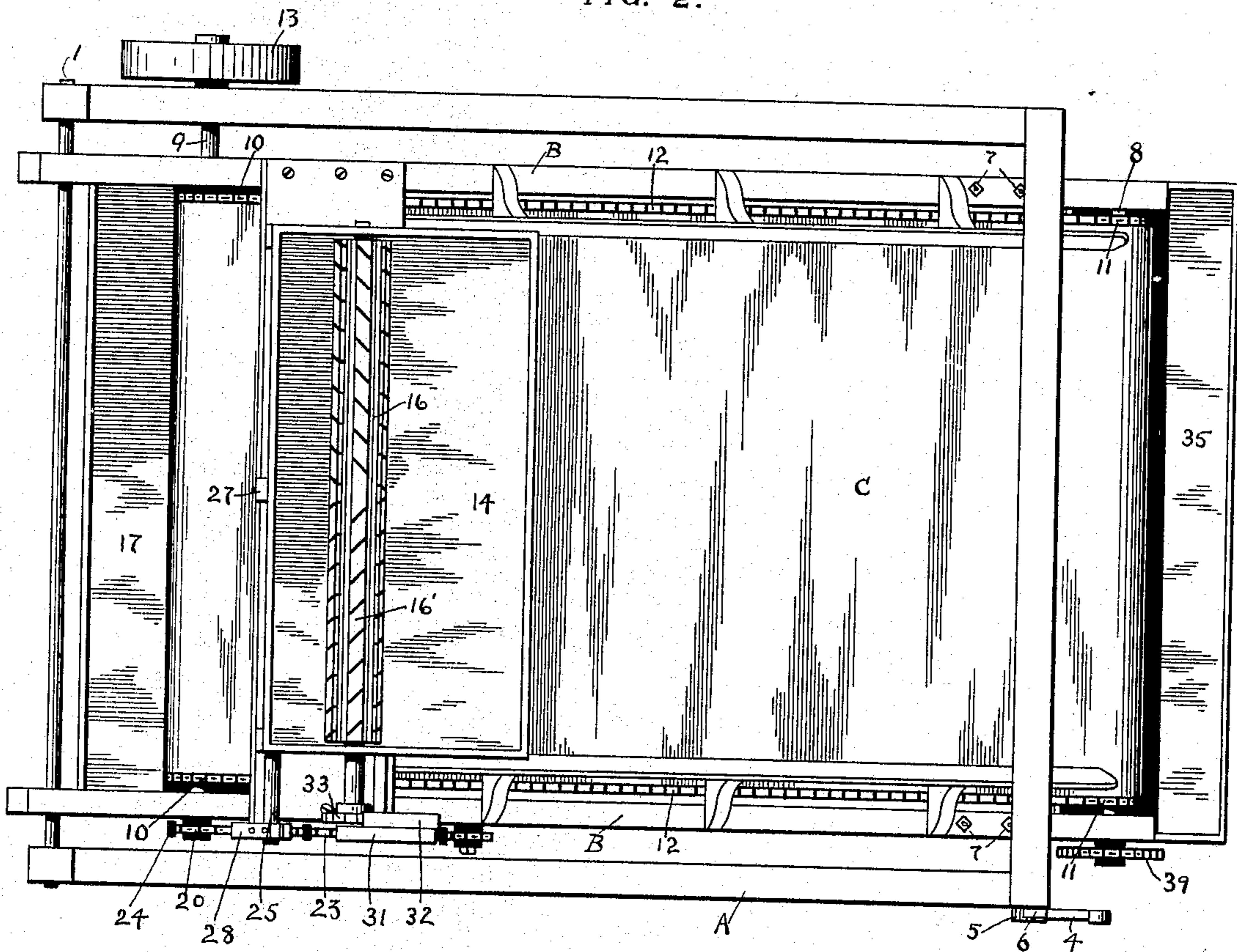
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3 SHEETS—SHEET 2.

FIG. 2.



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3 SHEETS—SHEET 3.

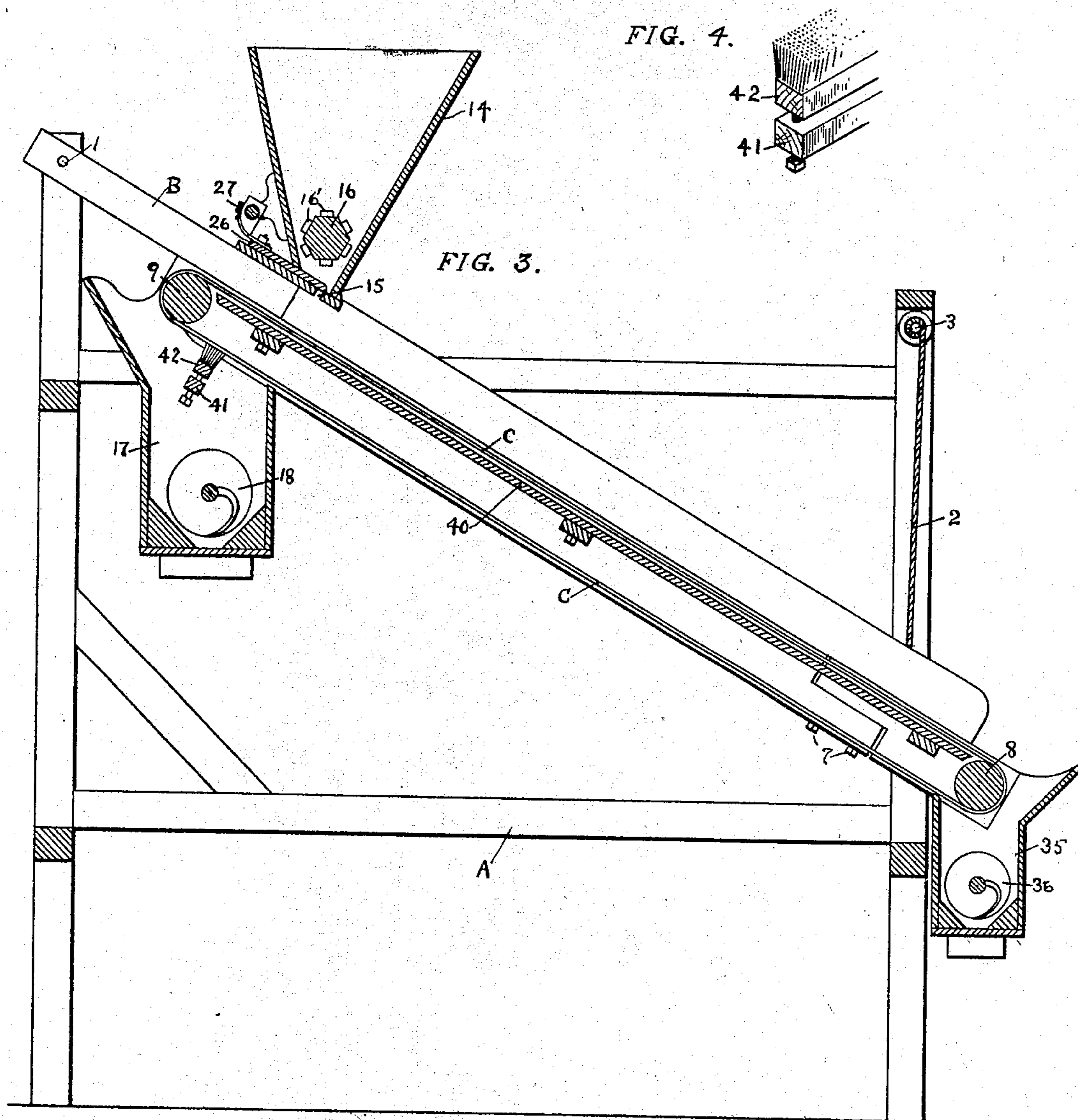


FIG. 4.

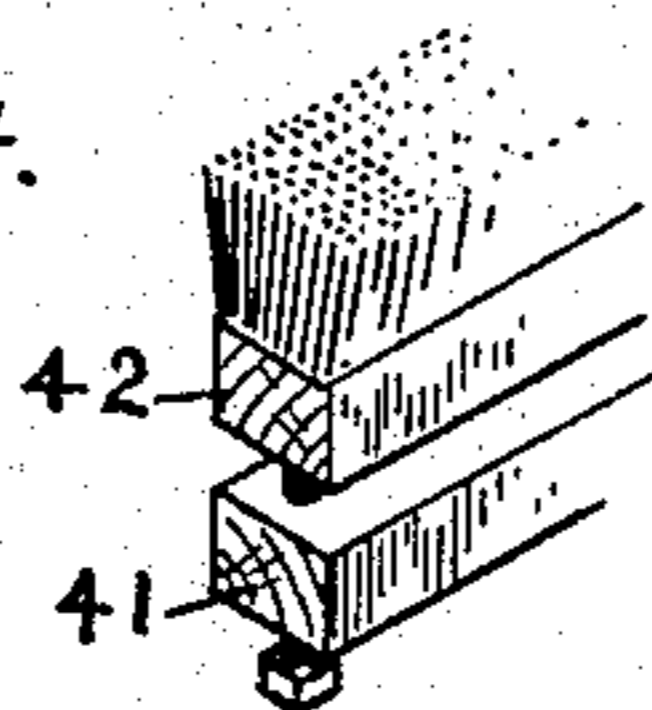


FIG. 3.

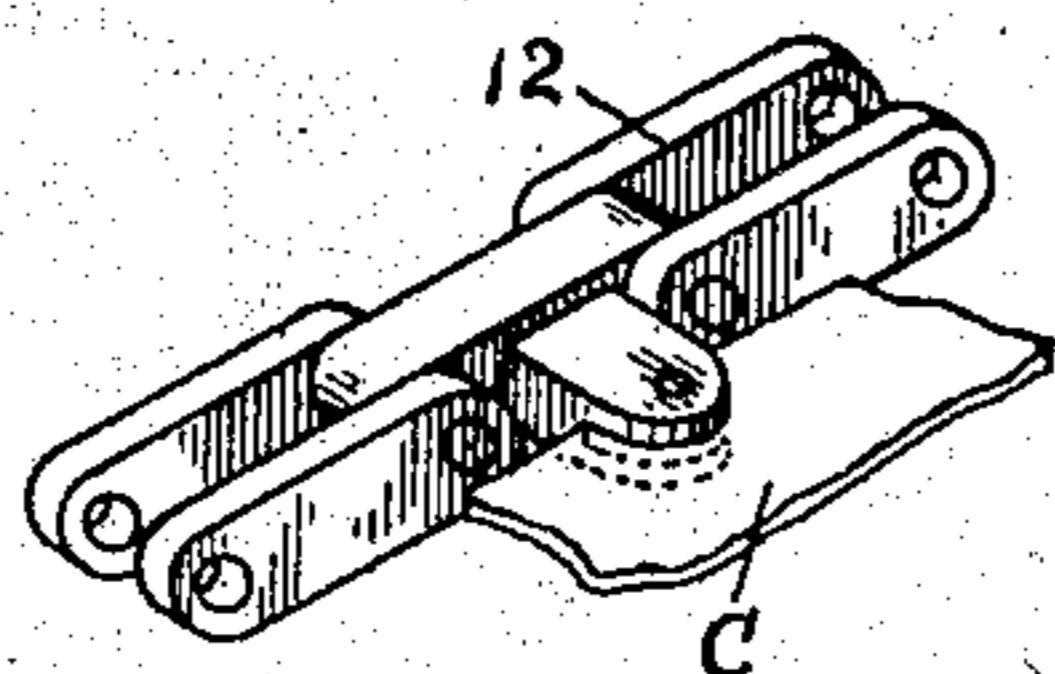


FIG. 5.

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UNITED STATES PATENT OFFICE.

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SEPARATOR.

No. 930,853.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed March 30, 1909. Serial No. 486,695.

To all whom it may concern:

Be it known that we, SAMUEL FRANKS, JR., DAVID FRANKS, and CHARLES FRANKS, citizens of the United States, residing at Millersburg, in the county of Holmes and State of Ohio, have invented certain new and useful Improvements in Separators, of which the following is a specification.

This invention relates to an improvement in separators, and more particularly to the separation of grain and seeds, the object of the invention being to separate light or foul seeds and grit from the good or clean seeds, this being accomplished by discharging the grain or seeds from a hopper at intervals upon an endless belt, which is supported at such an incline that the lighter or foul material will pass over the upper end of the belt, and the good or clean seeds will pass down over the lower end of the belt into a hopper, where it can be conveyed to any suitable receptacle.

The invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings—Figure 1 is a view in side elevation; Fig. 2 is a top plan view; Fig. 3 is a longitudinal vertical section; Fig. 4 is a view of a brush for cleaning the endless belt, and Fig. 5 is a detailed view disclosing the manner of connecting the endless belt to the links of the sprocket chain.

A represents a frame or support which may be used for supporting the separator frame B. I have shown the upper end of the frame B pivotally mounted as at 1 to the frame or support A. The lower end of the frame is adjustably supported on the frame A by ropes 2, which are connected to the frame and to the shaft 3, which is journaled in the frame A. Connected to one end of the shaft 3 is a crank arm 4 for adjusting the inclination of the frame B. The shaft 3 is held in its different positions by a ratchet 5 on the shaft which is engaged by a pawl 6 on the frame A. The separator frame B is made in two sections and is adjustably connected together by means of bolts 7, which permits of the frame being lengthened or shortened as desired for regulating the length of the frame for tightening the endless belt C which is mounted on shafts 8 and 9 journaled in the frame B. Sprocket wheels 10 are mounted upon the

shaft 9, and sprocket wheels 11 are mounted on the shaft 8 over which sprocket chains 12 pass, which chains are connected to the endless belt C by any suitable means whereby the belt is moved. Mounted on the shaft 9 is a belt pulley 13 whereby motion is transmitted to the shaft 9 for causing the belt to travel. A hopper 14 is mounted upon the separator frame B near the forward end of the belt C. An opening 15 is formed in the bottom of the hopper for admitting the grain from the hopper to pass onto the belt. An agitator or spreader shaft 16 is journaled in the hopper and is provided with blades 17 which extend one-half the distance of the shaft in one direction and in the opposite direction the remaining length of the shaft, whereby the grain is spread and an even feed is provided through the opening 15 in the bottom of the hopper.

A pocket 17 is supported on the underside of the frame B, and is adapted to receive the light seeds or foul material, grit, and the like as it passes over the forward end of the belt in the separation of the grain. A screw conveyor 18 is journaled in the bottom of the pocket for discharging the material through the bottom of the pocket. A sprocket wheel 19 is journaled on one end of the screw conveyor 18, and the sprocket wheel 20 is mounted on the shaft 9, and an idler sprocket 21 is adjustably mounted in a slot 22 in one side of the frame B. Passing over these sprockets 19, 20, and 21 is a sprocket chain 23, which is provided with lugs 24. As the shaft 9 is rotated the sprocket wheel 20 is rotated causing the sprocket chain 23 to move, thereby actuating the shaft 18 for discharging the contents of the pocket 17.

A rock shaft 25 is mounted on the hopper 14, and connected to the shaft is a slide 26 by straps 27. The slide 26 is adapted to close the opening 15 formed in the bottom of the hopper 14. An arm 28 is connected to the shaft 25, and the arm is operated by the lugs 24 on the sprocket chain 23. As one of the lugs 24 which are formed at certain intervals on the belt comes in contact with the arm 28 the arm will be operated, causing the shaft 25 to be rocked, thereby drawing the slide and permitting the grain to pass from the hopper through the opening 15 onto the belt C. A spring 29 is connected to the arm 28 and to a bracket 30 and is adapted to draw the arm 28 rearward thereby causing the slide 26 to be moved for closing the

opening 15 of the hopper 14. A lever 31 is pivotally mounted on the hopper and at one end of the lever a pawl 32 is mounted, which is adapted to engage ratchet wheel 33 mounted on the spreader shaft 16. The lever 31 is operated by the engagement of the lugs 24 on the sprocket chain 23, and as the lug comes in contact with the lever drawing it forward, the pawl 32 is drawn rearward causing the spreader shaft 16 to be revolved. A spring 34, which is connected to the lever 31 and to the bracket 30, draws the lever rearward and the rearward movement of the lever causes the pawl 32 to be moved forward to take another hold upon the ratchet wheel 33 for the next operation. An intermittent feed is provided as the lever 31, which is adapted to rotate the shaft 16 by the pawl 32 and ratchet wheel 33, is actuated by the lugs 24 on the sprocket chain 23, and the arm 28 is operated by the lugs 24 for causing the slide 26 to be drawn forward to permit the discharge of the grain from the hopper onto the belt. The lugs 24 are spaced such a distance apart that the springs 29 and 34 will draw the arm 28 and lever 31 rearward to their normal position after their operation by the lugs 24 for the next operation, and the slide 26 will be moved for closing the opening in the hopper thereby preventing any grain from being admitted onto the belt C until the arm is again operated by the next lug on the sprocket chain 23.

A pocket 35 is connected to the lower or rear end of the separator frame B, and journaled in the pocket is a screw conveyer 36 for discharging the good or clean seeds which are delivered from the belt C into the pocket out through the bottom of the pocket to any suitable receptacle. A sprocket wheel 37 is mounted on the shaft 8 and a sprocket wheel 38 is mounted on the shaft 36, and the sprocket chain 39 passes over the sprocket wheels 37 and 38 for transmitting motion to the conveyer shaft 36 as the shaft 8 is rotated. A table 40 is mounted upon the frame B, over which the endless belt C passes. Adjustably mounted in the pocket 17 on a bar 41 is a brush 42, which is adapted to clean the belt as it travels over the shaft 9.

The shaft 9 is rotated by motion being transmitted to the pulley 13 and the sprocket wheels on the shafts 8 and 9 over which the sprocket chains 12 pass will cause the belt C to travel as the shaft 9 is rotated. The sprocket wheel 20 on the shaft 9 is caused to rotate thereby transmitting motion to the conveyer shaft 18 by the sprocket chain 23. The lugs 24 on sprocket chain 23 will actuate the arm 28 thereby rocking the shaft 25 and causing the slide 26 to be moved thereby admitting a certain quantity of grain to be discharged upon the belt. The lugs 24 will also operate the lever 32, causing

the pawl 32 connected to the lever to operate the ratchet wheel 33 thereby rotating the spreader shaft 16 in the hopper 14. After the arm 28 has been operated by the lug 24 the spring 29 will cause the arm to be moved rearward thereby moving the slide 26 causing the opening 15 of the hopper 14 to be closed. The quantity of grain discharged upon the belt C will be moved by the belt traveling over the shafts 8 and 9. The inclination of the belt will cause the large clean seeds or grain to travel toward the rear end of the belt and into the pocket 35, from which it is discharged by the screw conveyer 36 which is operated by the sprocket chain 39 passing over sprocket wheels 37 and 38. The lighter or foul material will be drawn over the forward end of the belt C and into the pocket 17, from which it is discharged by the screw conveyer 18. Another quantity of grain will now be admitted to the belt C from the hopper 14 by the actuation of the arm 28 and lever 34 by the lugs 24 on the sprocket chain 23. The lugs 24 are so arranged upon the sprocket chain 23 that they will not operate the arm 28 and lever 34 until the material which has been admitted from the hopper 14 to the belt C has been separated. The brush 42, which is supported in the pocket 17 will keep the belt clean during the separating operation.

Having fully described the invention, what is claimed as new and is desired to be secured by Letters Patent is:—

1. In a separator, the combination with a frame, of a traveling endless belt mounted on the frame, a hopper mounted on the frame, a spreader in the hopper, a slide for closing the hopper, and means for operating the spreader and slide whereby the contents of the hopper is fed onto the belt.

2. In a separator, the combination with a frame, of a traveling endless belt mounted on the frame, a hopper mounted on the frame, a spreader in the hopper, a slide for closing the hopper, and means for operating the spreader and slide at intervals for intermittently feeding the contents of the hopper upon the belt.

3. In a separator, the combination with a frame, of an endless traveling belt mounted thereon, of a hopper mounted on the frame, a slide for closing the hopper, an arm connected to the slide, an endless traveling sprocket chain, and means on the chain adapted to engage the arm at intervals whereby the slide is operated for intermittently feeding the contents of the hopper to the belt.

4. In a separator, the combination with a frame, of an endless traveling belt mounted thereon, a hopper mounted on the frame, a spreader shaft journaled in the hopper, a lever connected to the shaft, a slide for closing the hopper, an arm connected to the

slide, an endless traveling chain, and means on the chain adapted to engage the lever and arm at intervals whereby the lever causes the spreader shaft to receive a partial rotation and the slide to be operated by the arm for intermittently feeding the contents of the hopper to the belt.

5 5. In a separator, the combination with an inclined frame, of an endless traveling belt
10 mounted thereon, means for adjusting the inclination of the frame and belt, a hopper mounted on the frame, a spreader shaft journaled in the hopper, a lever connected to the shaft, a slide for closing the hopper,
15 an arm connected to the slide, an endless traveling chain, and means on the chain adapted to engage the lever and arm at intervals whereby the lever causes the spreader shaft to receive a partial rotation and the
20 slide to be operated by the arm for intermittently feeding the contents of the hopper to the belt.

6. In a separator, the combination with an inclined frame, of an endless traveling
25 belt mounted thereon, a hopper mounted on

the frame, a spreader shaft journaled in the hopper, a lever connected to the shaft, a slide for closing the hopper, and a rock shaft connected to the slide, an arm on the shaft, pockets on the frame at each end of 30 the belt, an endless traveling chain, lugs mounted on the chain at intervals adapted to operate the lever and arm whereby the lever will rotate the spreader shaft and the arm will operate the rock shaft moving the 35 slide thereby discharging a quantity of material from the hopper onto the belt and the lighter material will pass over the forward end of the belt into one of the pockets and the heavier material will pass down over 40 the rear end of the belt into the other pocket.

In testimony whereof we affix our signature, in the presence of two witnesses.

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DAVID FRANKS.
CHARLES FRANKS.

Witnesses:

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WM. N. CROW.