

No. 627,319.

Patented June 20, 1899.

F. BENDER.

RECLEANING ATTACHMENT FOR CLOVER OR TIMOTHY RECLEANERS.

(Application filed July 28, 1898.)

(No Model.)

4 Sheets—Sheet 1.

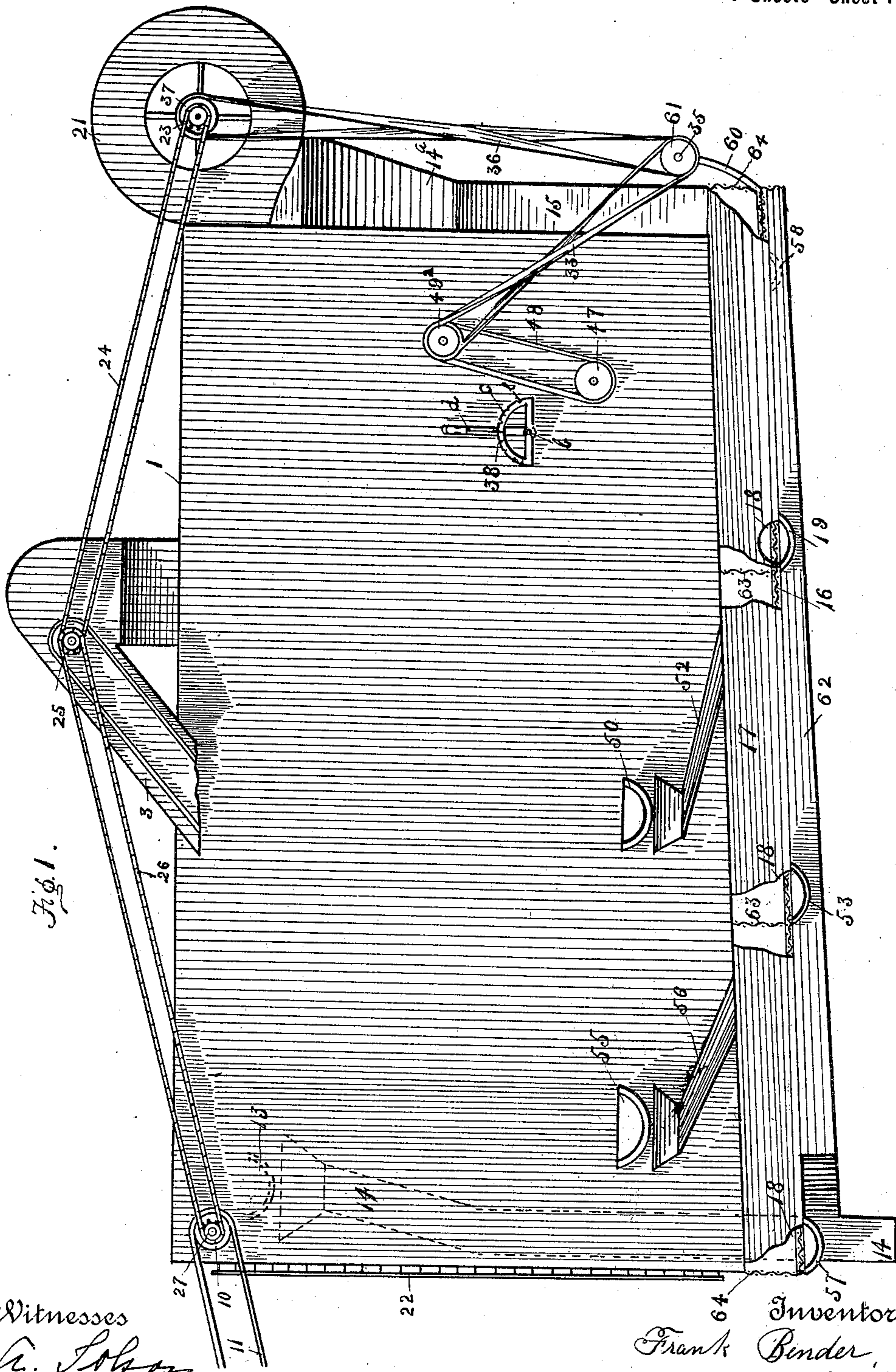


Fig. 1.

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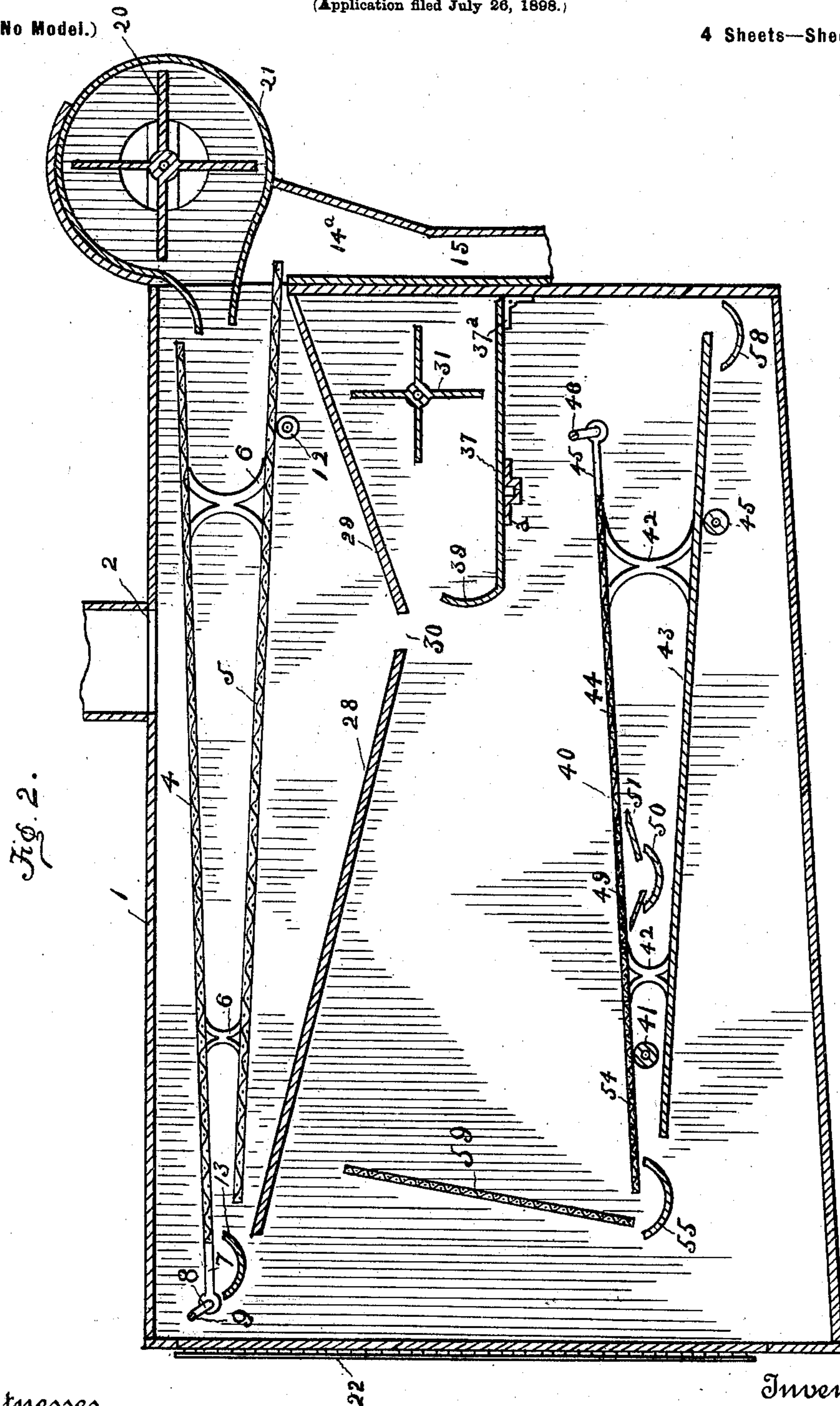
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RECLEAVING ATTACHMENT FOR CLOVER OR TIMOTHY RECLEANERS.

(Application filed July 26, 1898.)

4 Sheets—Sheet 2.

(No Model.)



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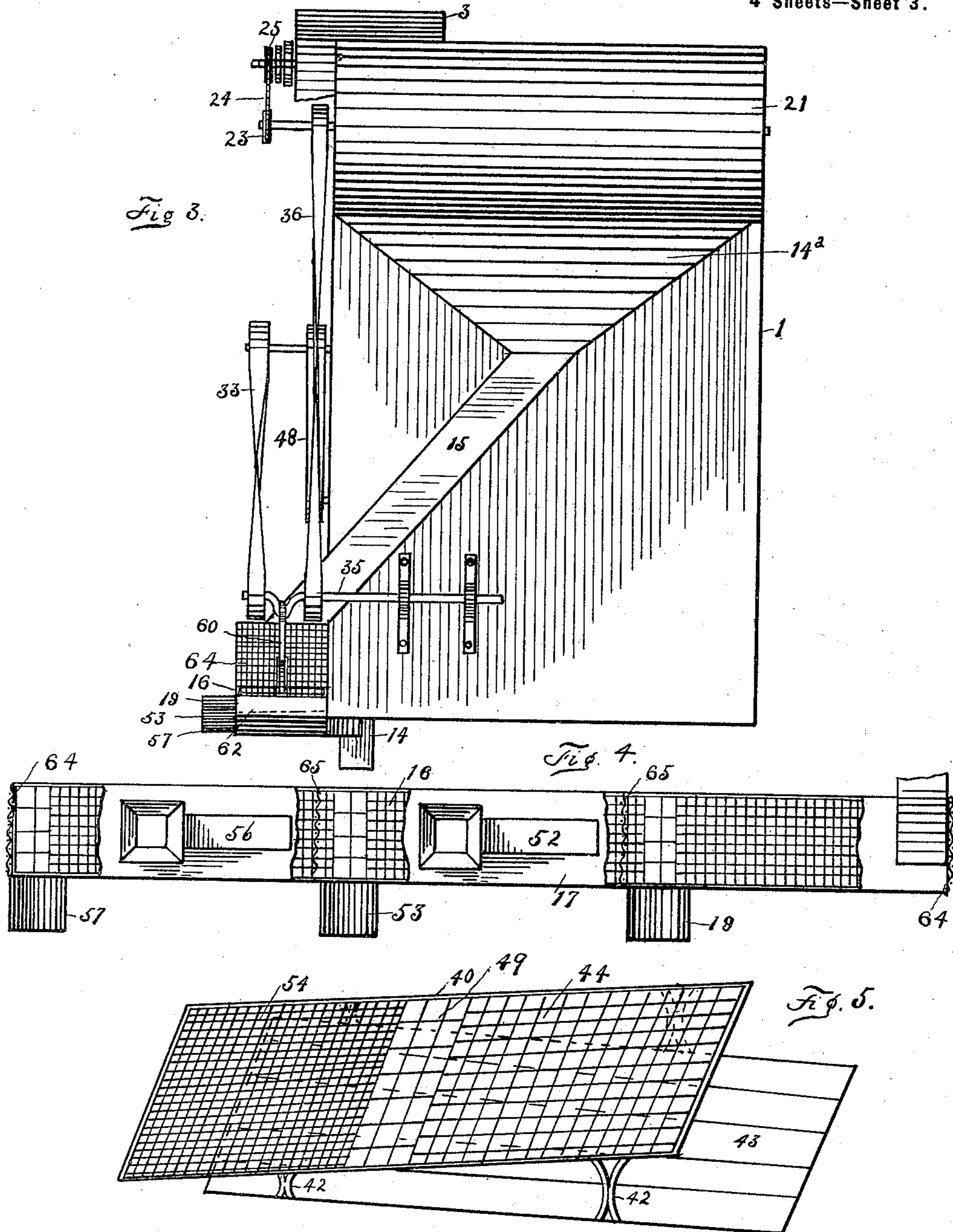
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RECLEANING ATTACHMENT FOR CLOVER OR TIMOTHY RECLEANERS.

(Application filed July 26, 1898.)

(No Model.)

4 Sheets—Sheet 3.



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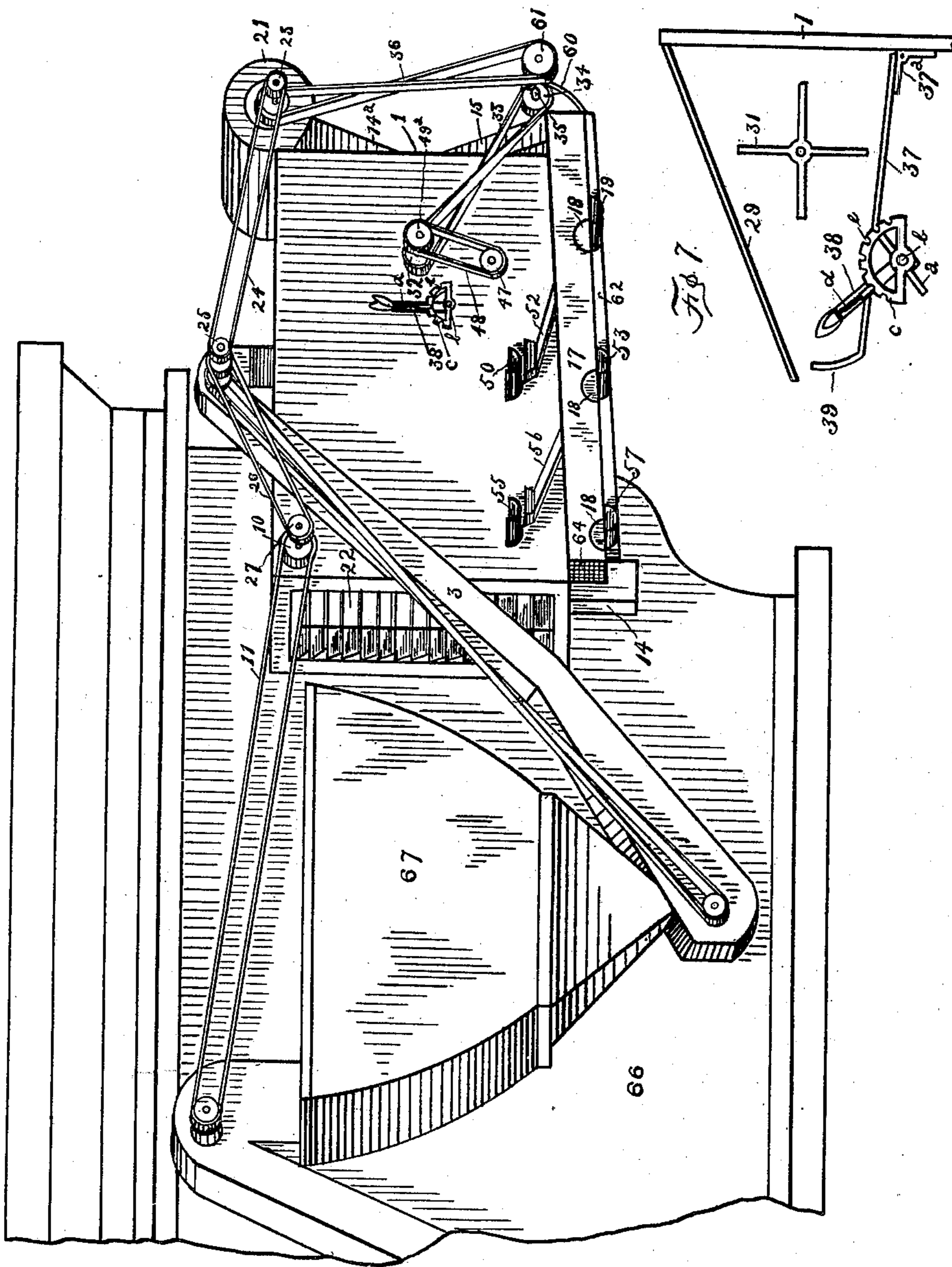
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(Application filed July 26, 1898.)

(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

FRANK BENDER, OF STILWELL, IOWA.

RECLEANING ATTACHMENT FOR CLOVER OR TIMOTHY RECLEANERS.

SPECIFICATION forming part of Letters Patent No. 627,319, dated June 20, 1899.

Application filed July 26, 1898. Serial No. 686,893. (No model.)

To all whom it may concern:

Be it known that I, FRANK BENDER, a citizen of the United States, residing at Stilwell, in the county of Poweshiek and State of Iowa, have invented certain new and useful Improvements in Recleaning Attachments for Clover or Timothy Recleaners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a recleaning and separating attachment for clover and timothy recleaners, and has for its objects to provide an attachment for recleaners which will thoroughly clean and separate timothy-seed and first and second grade clover-seed from weed-seed, dust, and other foreign matter which may have escaped the first recleaning operation and to deliver the said timothy and first and second grade clover-seed in separate receptacles in a marketable condition.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described and claimed.

In the drawings, Figure 1 is a perspective view of my invention with one side removed, and Fig. 2 represents a vertical longitudinal section of the same. Fig. 3 is a rear elevation of my machine. Fig. 4 is a plan view of the final recleaning-passage with parts broken away to show the final recleaning-screen. Fig. 5 is a perspective view of the lower shoe 40. Fig. 6 is a view of my recleaning attachment in position on a threshing-machine 66 and connected with an ordinary recleaner 67, and Fig. 7 is a sectional view showing the draft-regulator in a raised position.

Referring to the drawings, the number 1 represents the casing of my machine, which is attached to a recleaner in any suitable manner and has an opening 2 in its top, to which opening the grain is carried by means of an ordinary elevator in the elevator-shaft 3. Arranged in the upper portion of the casing, short distance below the opening 2 and extending nearly the entire length of the casing, are the cleaning-screen 4 and the separating-screen 5, the screen 5 being placed a

short distance below the screen 4 and connected thereto by means of brackets 6, one pair of the said brackets being longer than the other pair, whereby the said screens are made to incline in opposite directions. Screen 4 is connected at its forward end by means of pitman 7 to cranks 8, formed on rod or shaft 9, journaled in the casing 1, whereby the screens are given a vibratory reciprocating motion by means of the belt-pulley 10, fixed to the end of the shaft 9, which projects outside the casing, and a belt 11, driven by any suitable source. The rear end of the screen 5 rests upon a roller 12, journaled in the sides of the casing.

The screen 4 inclines downwardly and forwardly, the lower end thereof reciprocating over a trough 13 and is adapted to relieve the seed deposited thereon through the opening 2, in the top of the casing, of straw, large weed-seed, &c., and discharge said matter into the said trough 13, which empties into chute 14 and passes into a receptacle at the lower end of said chute. The screen 5 inclines downwardly and rearwardly and is adapted to separate the first-grade clover-seed and discharge the said seed into the transverse hopper 14^a, over which the lower end of screen 5 reciprocates. From hopper 14^a the first-grade clover-seed passes through chute 15 and is deposited on reciprocating screen 16 in the final recleaning passage 17 and is gradually worked along said passage and passes through the said screen 16 into spout 18 and thence into suitable receptacles.

At the upper rear end of the casing and extending from side to side thereof a fan 20 is mounted in a fan-casing 21 and is adapted to direct its blast above screen 5 and under and through screen 4, carrying the dust from the said screens out through ventilator-slats 22 in the forward end of the machine. The said fan 20 is operated by means of sprocket-wheel 28, fixed on the end of its shaft outside its casing, and chain 24, meshing with sprocket-wheel 25 on upper shaft of elevator in elevator-shaft 3, which in turn is driven by chain 26, meshing with a sprocket on the said elevator-shaft, and sprocket 27, fixed on shaft 9.

The inclined boards 28 29 form a hopper for screen 5 and are rigidly fixed below the

said screen between the sides of the casing, with a transverse opening 30 between their lower ends, thus allowing the grain that falls on the said boards to pass through the said opening 30, where the grain is met by a blast from the fan 31, arranged beneath inclined board 29 on shaft journaled in sides of casing and operated by pulley-wheel 32 on end of its shaft outside the casing and band 33 on band wheel or pulley 34 on shaft 35, which in turn is driven by band 36 on belt-wheel 61 on shaft 35 and band-wheel 37 on shaft of fan 20.

The blast from the fan 31 is regulated by wind-board 37, the rear end of which is hinged, by means of the hinge 37^a, to the rear end of the casing, whereby the forward end is permitted to be raised and lowered by means of regulator-adjuster 38 on outside of casing. The forward end of the regulator is provided with an upwardly-turned extension 39 for the easier regulation of the blast. The inner or free end of the regulator-board 37 rests upon a flat plate *a*, secured to the rod *b*. The said rod *b* extends transversely across the casing and has one end journaled in one side thereof, and the other end, extending through the opposite side, is pivotally secured in the chord of the segment *c*, fixed on the outside of the casing. The lower end of the regulator-adjuster 38 is rigidly secured to the said rod *b* adjacent the segment and has attached to its upper portion a spring-pressed rod *d*, which engages notches *e* in the segment *c*. Thus, as will be seen, when the rod *d* is released from its notch and the handle of the adjuster moved to one side the supporting-plate *a* will be tilted in a corresponding direction, (see Fig. 7,) which in turn will raise the free end of the regulator-board, and thus by decreasing the opening between the extension 38 on the regulator and the lower end of the inclined board 29 the draft from the fan 31 may be controlled as desired.

Situated in the lower portion of the casing is a vibrating shoe 40, the forward end of which rests upon a transverse roller 41, journaled in the sides of the casing 1, and beneath the said shoe and secured thereto by means of brackets 42 is an inclined board 43, the outer end of which rests upon a transverse roller 45, journaled in the casing 1. The said board 43 is adapted to receive the weed, seed, &c., which I pass through the screens of the shoe 40 and discharge the said refuse into transverse trough 58 beneath the lower end of said board 43. The said trough 58 empties into trough 62, which extends beneath the final recleaning-screen 16 and receives the small weed-seed, &c., which pass through the said screen and empties into the lower end of chute 14, thus permitting one receptacle placed beneath the outlet of chute 14 to receive the refuse from the various screens. The shoe 40, and likewise the board 43, is reciprocated by means of pitman 45, connected to crank-shaft 46, journaled in the

sides of the casing, and band-wheel 47, connected, by means of band 48, to band-wheel 40 on shaft of fan 31. The screen of the shoe 40 is divided into three portions, the portion 44 being adapted to receive the second-grade clover-seed from the opening 30 and the portion 49^a to allow the passage of said seed into transverse trough 50, over which the portion 49 is reciprocated. The said seed passes from the trough 50, the mouth of which extends outside the casing, into the chute 52, thence into the final recleaning-passage 17, and out through spout 53 into receptacles placed to receive the seed. The third portion of the shoe 40 is screen 54, which is adapted to receive the timothy-seed blown upon it by the blast from the fan 31 and to discharge said timothy-seed into the transverse trough 55, over which the lower end of the said screen reciprocates. From trough 55 the said seed passes through chute 56 into passage 17 and out through spout 57.

Screen 59 is rigidly held between the sides of the casing, with its lower end over the transverse trough 55 and its upper end inclined inwardly, and is adapted to prevent the loss of light timothy-seed, which might be blown over the screen 54 by the blast from the fan 31.

The final recleaning-passage 17 is shown as secured to the outside of the casing and is situated along one side, near the bottom, of said casing. Screen 16 extends the entire length of the said passage 17 and is reciprocated by means of pitman 60, connected with a crank on shaft 35. The interstices of the said screen are made somewhat larger over the spouts 19, 55, and 57 for a space somewhat narrower than the width of the said spouts to allow the grain to pass through said screen into its spout. Openings 18 in the passage 17 are intended to allow the escape of any grain which may accumulate in the passage over the discharge-spouts and also to permit the removal of any foreign matter which may lodge against the separating-screens 63, the said separating-screens 63 being placed in the passage 17 adjacent the openings 18 to prevent the mixing of the different grades of seed. The ends of the passage 17 are closed by screens 64, which allow the escape of dust and permit a draft to pass through the said passage.

The operation of my machine is as follows: The clover, timothy, and other seeds after passing through the recleaner are deposited on cleaning-screen 4 by means of an elevator in elevator-shaft 3 in the usual manner. The mesh of the screen 4 is adapted to relieve the clover and timothy seed of all foreign matter, such as straw and large weed-seed, and allow the clover and timothy seed to pass therethrough. The said foreign matter remaining on screen 4 is gradually worked off its lower end into transverse trough 13 by means of the reciprocation of the said screen, as heretofore described, assisted by the under

blast from the fan 20 at the opposite end of the casing. From trough 13 the said foreign matter enters the chute 14 and passes into suitable receptacles placed beneath the lower end of the said chute. After passing through screen 4 the clover and timothy seed fall upon screen 5, the meshes of which are of such size as to allow the timothy-seed and second-grade clover-seed to pass therethrough and to retain the first-grade or prime clover-seed. By the operation of the screen 5 the first-grade clover-seed is gradually worked off its lower end into hopper 14^a of chute 15 and after passing through chute 15 is deposited on screen 16 in the final recleaning-passage 17, where it undergoes a final recleaning, is relieved of any fine weed-seed and dust that may have escaped the former operations, and passes through spout 19 into receptacles and is ready for market. The timothy and second-grade clover seed after passing through screen 5 fall upon the inclined boards 28 29 and pass through opening 30 therebetween, at which point the said seed encounter a straight blast from fan 31, as heretofore described. The second-grade clover-seed being heavier than the timothy-seed falls upon screen 44 of the shoe 40, and by the action of the said shoe is passed to the screen 49 and therethrough into the trough 50, thence into chute 52 through a portion of passage 17, and out through discharge-spout 53 into receptacles. The timothy-seed being lighter than the second-grade clover-seed is blown by the blast from fan 31 to the farther end of the machine, where it falls upon the screen 54 of the shoe 40, from the lower end of which the said seed are discharged into trough 55 and pass into passage 17 through chute 56 and from spout 57 into receptacles. Any weed-seed or other matter which passes through the screens in the shoe 40 falls upon the incline-board 43, and from the lower end of the said board is discharged into trough 58, and thence into an inclined chute 62 under passage 17 and is carried by the force of gravity along the said chute, together with any fine weed-seed or other matter that may pass through screen 16, through an opening

in chute 14, and thence into suitable receptacles.

What I claim is—

1. In a grain-recleaner, a casing, upper reciprocating cleaning and separating screens, fan for the said screens, inclined boards beneath the said screens, a fan adjacent to a transverse opening between the said boards, a regulator for the said fan, a lower reciprocating shoe, the screen on the forward portion of the said lower shoe being of a coarser mesh than the screen on the rear portion is adapted to receive the heavy seed from the said opening while the screen on the rear portion being adapted to receive the lighter seed from the said opening blown upon it by the blast from the fan adjacent to the opening, a narrow transverse screen of coarser mesh than the forward screen being interposed between the said forward and rear portions, and chutes from the said screens to a final recleaning-passage provided with separate outlets, substantially as set forth.

2. In a recleaning attachment, the combination with a casing, inclined boards within the said casing, a blast-fan adjacent to an opening between the said boards, of a reciprocating cleaning and separating shoe within the said casing consisting of an upper screen and lower plain surface connected together by brackets and inclined in different directions, the forward and rear portions of the said screen being of different-sized mesh separated by a narrow transverse screen of larger mesh, the said narrow strip being adapted to allow the passage therethrough of the grain from the inclined screen above it into a trough over which it is reciprocated, the said blast-fan being adapted to blow the lighter seed beyond the coarser portion of the said screen, substantially as set forth.

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

FRANK BENDER.

Witnesses:

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D. M. ADAMS.