(No Model.) 2 Sheets—Sheet 1.

C. D. BECKWITH.

HAY OR GRAIN ELEVATOR AND DISTRIBUTER.

No. 597,096. Patented Jan. 11, 1898.

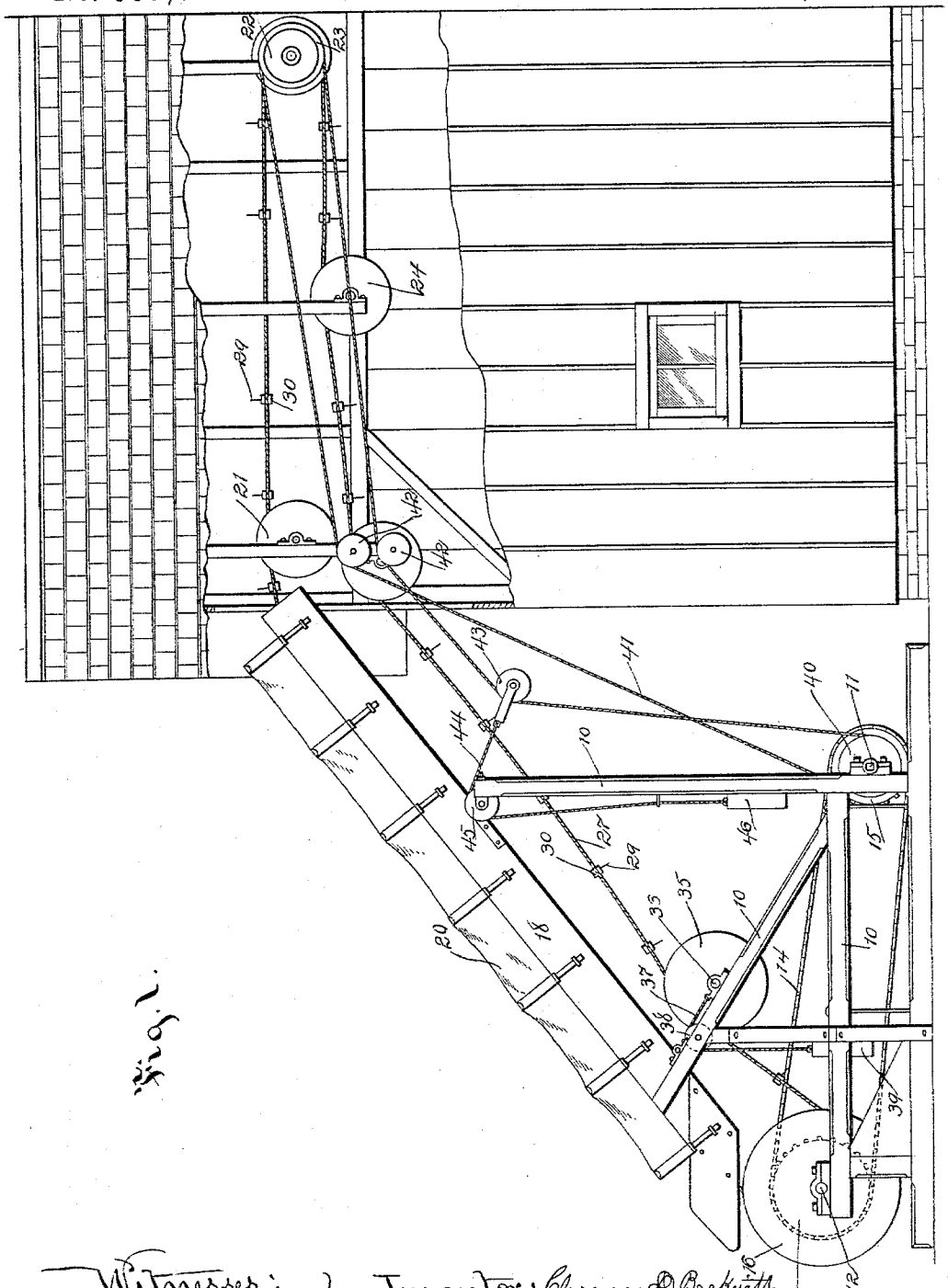


Fig. 1.

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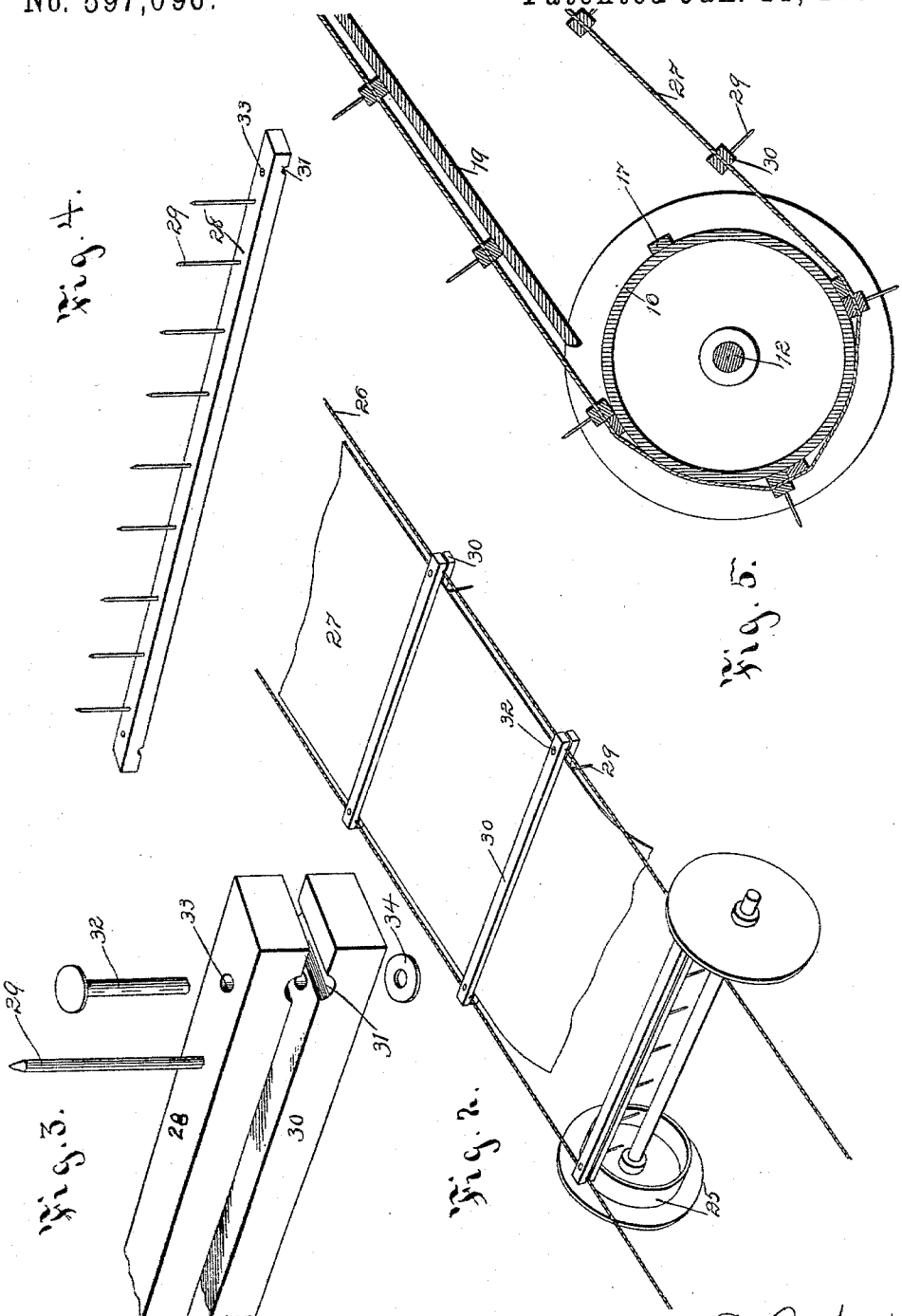
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(No Model.) 2 Sheets—Sheet 2.

C. D. BECKWITH.

HAY OR GRAIN ELEVATOR AND DISTRIBUTER.

No. 597,096. Patented Jan. 11, 1898.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CLARENCE D. BECKWITH, OF GOODELL, IOWA.

HAY OR GRAIN ELEVATOR AND DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 597,096, dated January 11, 1898.

Application filed May 24, 1897. Serial No. 637,973. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE D. BECKWITH, a citizen of the United States, residing at Goodell, in the county of Hancock and State of Iowa, have invented a new and useful Apparatus for Elevating and Distributing Grain, &c., of which the following is a specification.

The object of this invention is to provide an apparatus of simple, durable, strong, and inexpensive construction especially designed to be placed in barns and storage-houses and capable of quickly and easily conveying, from a point near the ground surface exterior to the barn to the top and interior of the barn, hay or grain or any other material that may be desired to be placed within the barn.

A further object is to provide means whereby the contents of the carrier may be deposited at any suitable point within the interior of the barn.

A further object is to provide a conveyer of simple, cheap, and durable construction, and also to provide automatic means for regulating the tension of the conveyer.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of the apparatus in position for practical use with part of the barn broken away to show the entire apparatus. Fig. 2 shows a detail perspective view of the conveyer and one of the rollers for supporting the same on its return movement. Fig. 3 shows a detail perspective view illustrating the construction of the cross-pieces of the conveyer proper. Fig. 4 shows a detail perspective view of the top section of one of the cross-pieces of the conveyer. Fig. 5 shows a detail sectional view of the driving-cylinder and part of the conveyer passed around the cylinder.

Referring to the accompanying drawings, the reference-numeral 10 is used to indicate a frame for supporting the driving mechanism of the conveyer. In this frame is rotatably mounted a shaft 11, which is arranged to be driven by power applied thereto in any suitable ordinary way.

12 indicates a shaft fixedly mounted in the frame 10 and having loosely mounted thereon a sprocket-wheel 13, connected by means of a chain 14 with a sprocket-wheel 15 on the shaft 11. Hence when the shaft 11 is driven the sprocket 13 will be rotated in unison.

16 indicates a drum fixed to the sprocket 13 and having a number of longitudinal cleats 17 thereon.

18 indicates a conveyer-guide having a bottom 19 and auxiliary sides or wind-guards 20. This conveyer-guide is supported by the frame 10 to stand at an angle to extend from a point near the drum 16 to a window or opening in the barn or storehouse with which the apparatus is connected.

Within the barn or storehouse I have mounted a drum 21, capable of free rotation, at a point near the upper end of the conveyer-guide 18, and at suitable intervals throughout the length of the barn or storehouse I have mounted the drums 22 in alinement with the drum 21 and provided with a grooved pulley 23 at one end. I have also provided one or more idlers 24, comprising a shaft fixedly mounted and two flanged disks 25 rotatably mounted near the ends thereof. These idlers are for the purpose of supporting the conveyer on its return, and one or more of them may be used, as desired.

The conveyer proper is of very cheap, simple, and durable construction and comprises two ropes 26, a strip of flexible material 27, such as canvas, and a series of cross-pieces. These cross-pieces are each composed of two parts, the part 28 being provided with teeth 29 to project upwardly through them and the part 30 being a counterpart of the part 28, except for the teeth. At the ends of each part are semicircular transverse grooves 31, designed to engage the ropes 26.

32 indicate rivets arranged to be passed through the openings 33 in the cross-pieces, and 34 is a washer to be placed on the lower end of the rivet 32.

When the parts of the conveyer are connected, it is obvious that the cross-pieces will be engaged by the cleats 17 on the drum 16, and hence the conveyer will be positively

driven, and, furthermore, the said cross-pieces will serve to engage any substances placed upon the conveyer, and hence will carry them along with the conveyer. The cross-pieces also serve to hold the ropes 26 at proper distances of separation. The conveyer thus formed is passed around the drum 16, over the bottom of the conveyer-guide 18, over the drum 21 and the drums 22, and then over the top of the idlers 24 to the drum. A tension device, comprising an idler 35, is provided to engage the returning portion of the endless conveyer and is mounted on sliding bearings 36, which have a rope 37 connected therewith, passed over a pulley 38 and provided with a weight 39. Hence the conveyer is kept stretched tight at all times.

I have provided means for aiding in the driving of the endless conveyer, as follows: 40 indicates a pulley fixed to the shaft 11, and 41 indicates a rope passed around the said pulley and around the pulley 23 on the drum 22. Direction-pulleys 42 are provided for guiding the rope 41, and a pulley 43 is placed in engagement with the rope 41 and is provided with a rope 44, passed over a pulley 45, connected with a weight 46 to thereby take up slack in the rope 41. By this means the power is applied to the drums at the opposite ends of the conveyer.

In practical operation the device is placed in position and the shaft 11 is preferably operated by horse-power. Then the hay, fodder, or other material to be loaded in the barn or storehouse is thrown upon the lower end of the conveyer-guide, and the cross-pieces of the conveyer will then engage it and carry the same to the last one of the drums 22, whereupon it will drop into the barn or storehouse. This operation is continued until that particular portion of the barn or storehouse has become filled. Then a section of the endless conveyer is removed and the conveyer passed around the next adjacent one of the drums 22. For this purpose the ropes at the sides of the conveyer may be connected at suitable intervals with buckles, snap-hooks, or in any ordinary way.

With this kind of a conveying apparatus any sort of substances that may be loaded upon the conveyer will be carried to the interior of the barn or storehouse at the point of discharge.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. An elevating and distributing apparatus, comprising in combination, a frame, a drum rotatably mounted within the frame, means for driving said drum, a conveyer-guide having a solid bottom fixed to the frame to extend from a point near the drum upwardly, a series of drums rotatably mounted within the barn or building, one or more idlers over which the returning conveyer may pass to the driving-drum, and an endless conveyer composed of two ropes, a strip of flexible material between the ropes, and a series of cleats or cross-pieces fixed to the ropes and flexible material, to hold them in their proper relative positions, passed around the driving-drum over the conveyer-guide and over the drums within the barn or storehouse, and means for driving the last one of the drums within the barn or storehouse from the same source of power as the lower drum is rotated, substantially as and for the purposes stated.

2. An endless conveyer, comprising two ropes, two mating wooden cross-pieces having grooves on their end portions to admit the said ropes, teeth to project upwardly through one of the cleats, a strip of flexible material to fill the space between the ropes and to be admitted between the cleats, and rivets for connecting the cleats with each other and for clamping the ropes, substantially as and for the purposes stated.

3. An apparatus for elevating, carrying, and distributing hay, grain, and merchandise, comprising a frame, a shaft rotatably mounted therein, a sprocket on the shaft, and a pulley on said shaft, a drum rotatably mounted in the frame, a sprocket therein, and a sprocket-chain for connecting the said sprockets, transverse cleats on the drum, a conveyer-guide extending from a point near the drum upwardly, one or more idlers located in the barn or storehouse in alinement with the conveyer-guide, a drum also rotatably mounted in the barn or storehouse at the point where the discharge is to be made, one or more idlers over which the returning conveyer may pass, an idler slidingly mounted, and means for yieldingly holding it against the returning conveyer to hold the same taut, a conveyer composed of two ropes, a strip of flexible material between the ropes, and a series of cleats each composed of two pieces, one piece having upwardly-projecting teeth, means for connecting the cleats and for holding the ropes and flexible strip firmly between them, said conveyer being passed around the drums over the bottom of the conveyer-guide and over the said idlers, a pulley on the drum within the barn or storehouse, a rope connecting the said pulley with the aforesaid pulley on the driving-shaft, direction-pulleys for engaging the said rope, and means for taking up the slack in the said rope, all arranged and combined substantially in the manner set forth and for the purposes stated.

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