

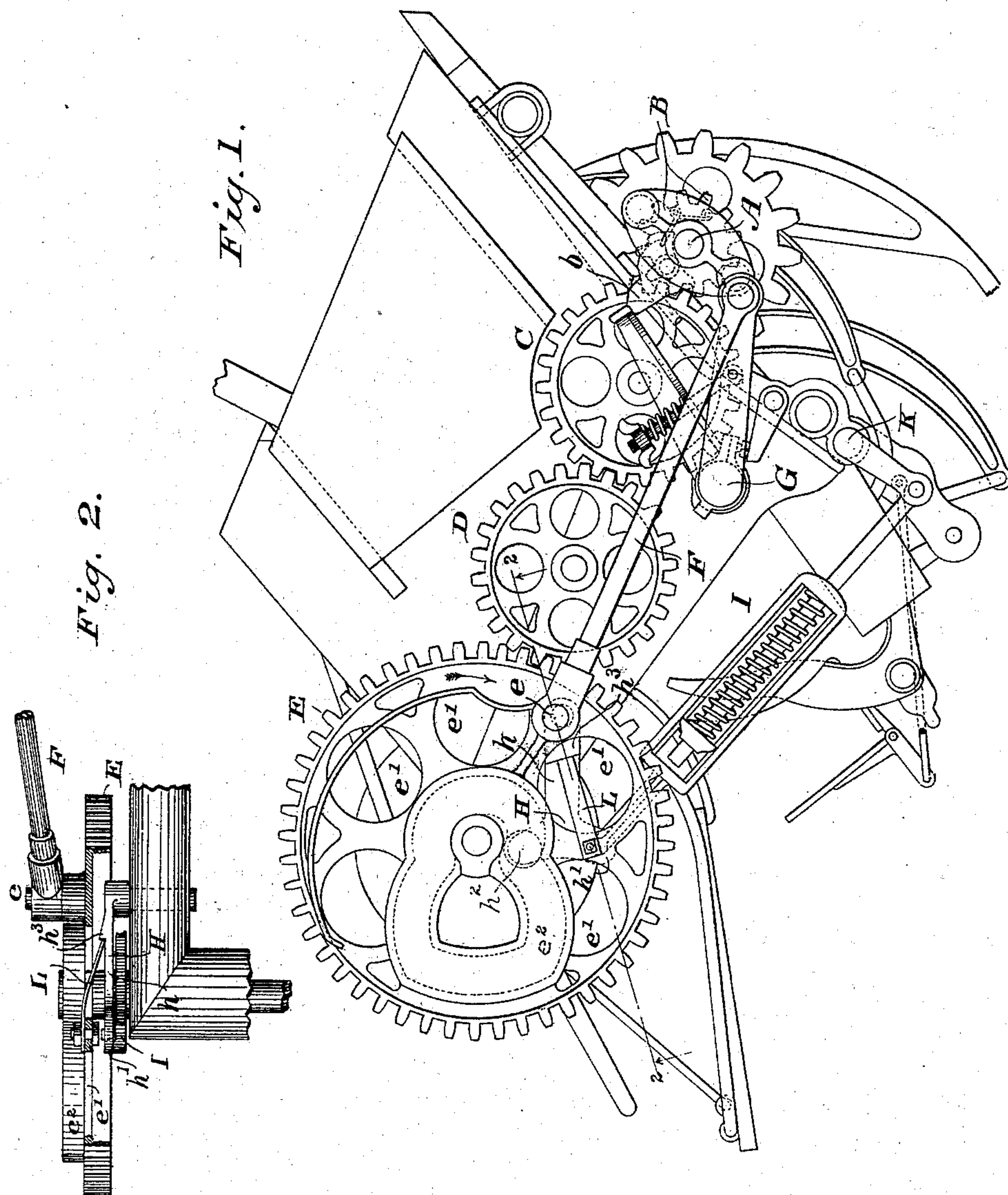
(No Model.)

W. ALDRICH.

GRAIN BINDER.

No. 274,692.

Patented Mar. 27, 1883.



WITNESSES

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WALES ALDRICH, OF MIAMISBURG, OHIO, ASSIGNOR TO ABEL HOOVER AND WM. GAMBLE, OF SAME PLACE.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 274,692, dated March 27, 1883.

Application filed January 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, WALES ALDRICH, of Miamisburg, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Grain-Binders, of which the following is a specification.

My invention relates to machines wherein the binding mechanism is automatically started by the pressure of the accumulating gavel, and more particularly to such as have the general structure of that type commonly called the "Appleby Binder." In this the binder-arm is supported upon a rock-shaft below the decking of the grain receptacle or chute, this chute being inclined from the receiving to the discharge side. The grain, as it enters the chute, is forced forward by packers till it strikes and accumulates against a compressing finger or fingers supported upon an arm beneath the decking and normally closing the exit from the receptacle; but rocking upon a pivot upon said arm, as the grain accumulates, it will finally, by acting upon a lever, cause the binding devices to be tripped or set in motion, when the cord is immediately carried around the gavel and its ends united, and the supporting-arm, swinging downward, by its positive action carries the compressing-fingers momentarily out of the way and allows the bound sheaf to be discharged. The binder-arm and the supporting-arm for the tripping or compressing fingers are driven by a train of cog-gearing from the constantly-rotating shaft connected with the harvester. The upper wheel of this train is a gear and cam wheel keyed to the shaft which actuates the knotter, and connected with the rock-shaft of the binder by means of a wrist-pin and pitman, and also to a rock-shaft, which at the proper time depresses the supporting-arm by means of another pitman, preferably formed with yielding sections, said latter pitman being attached to one arm of a T-shaped lever pivoted by its longer arm to the frame-work, and taking, by a pin or anti-friction roll upon the second arm of its head, into a cam-track upon the wheel, whereby it is actuated only at the proper moment after the binding operation is completed. I have found a tendency, when this machine is used in the field, to a reverse or backing action in the gearing at times when it should be positively at rest, which is due

either to the sagging of the heavy binder-arm or to the jar of the machine, or, perhaps, in some instances, to the pressure of the gavel upon the compressing-fingers, resulting in a downward force upon the supporting-arm. In order to overcome this tendency, I propose to apply a positive stop or lock, which shall come into effective play at the moment the binder reaches its position of rest, and absolutely prohibit any retrograde action; and I will proceed to describe, for the purpose of illustrating my invention, the most desirable embodiment of said locking device at present known to me.

In the drawings, Figure 1 is a front end elevation of a machine of the above-recited type having said locking device applied thereto, and Fig. 2 a section on the correspondingly-numbered line in Fig. 1.

A is the continuously-rotating driving-shaft, from which motion is communicated directly to the packing-arms, and B a pinion mounted loosely thereon, and acted upon by the usual tripping-clutch, *b*, to engage it with said shaft, and thereby drive, by the intermediate gear-pinions, C and D, the gear and cam wheel E, which, by means of its wrist-pin *e* and the pitman F, is connected with a crank from the rock-shaft G, carrying the binder-arm. This gear and cam wheel, to lighten it and relieve it of dead matter, has usually been made of skeleton form—that is, such material as can be spared without decrease of strength is removed, leaving a series of holes, *e'*, with webs of metal between, connecting the rim and the hub.

H is the T-lever, pivoted by its longer arm, *h*, to the frame-work of the machine, and connected, by a pin on one of its shorter arms, *h'*, and the yielding pitman I, with a crank from the rock-shaft K, this latter shaft having a link-connection with the supporting-arm for the compressing and tripping fingers, so as to retract it or return it to place, according to the motion of the shaft. The second short arm, *h*², of the T-lever is provided with a pin or roll entering the cam-track *e*² in the wheel, whereby said lever will be operated by the revolution of the wheel to communicate the appropriate motions to the yielding pitman, and thence to the supporting-arm and compressing-fingers. Upon the long arm of the lever is formed a

shoulder, h^3 , at such a point that when the binding mechanism is brought to its position of rest this shoulder will be opposite one of the perforations e' in the wheel. A plate-spring, L , is bolted or riveted to the body of the wheel, to one side of the perforations, a seat being formed for it in said body, so that it may be attached by a single bolt, and the free end of this spring is bent down to pass through the perforation and come at its point in line with the shoulder on the lever. This spring is so arranged relatively to the lever and to the direction of motion of the wheel that when the wheel is revolved to operate the binding mechanism it will at the outset carry the spring away from the shoulder; but as the revolution is being completed, the spring, being brought again to the lever, but on the opposite side of the shoulder, will be pushed aside by the latter, and immediately thereafter will snap down behind it in its original position, the wheel at the same moment ceasing its revolution. It will now be impossible for any retrograde motion to take place, since the spring, resting against said shoulder, will prevent the gear and cam wheel from returning in the direction from which it has come, and will permit it only to be moved

forward in the direction in which it will cause the binding mechanism to operate, and such latter motion will take place only when the machine is tripped by the accumulation of the gavel.

I claim—

1. The combination, substantially as hereinbefore set forth, with the gear and cam wheel and the lever operated by its cam-track, of a locking device between said wheel and lever, adapted to prohibit the motion of said wheel except in that direction in which it properly actuates the binding mechanism.

2. The combination, substantially as hereinbefore set forth, of the gear and cam wheel, the lever operated by its cam-track, the shoulder upon an arm of said lever, and the spring attached to said wheel, and arranged to pass said shoulder as the wheel moves in its proper direction, and to snap behind it as the wheel comes to rest, and thereby prohibit retrograde motion.

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Witnesses:

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