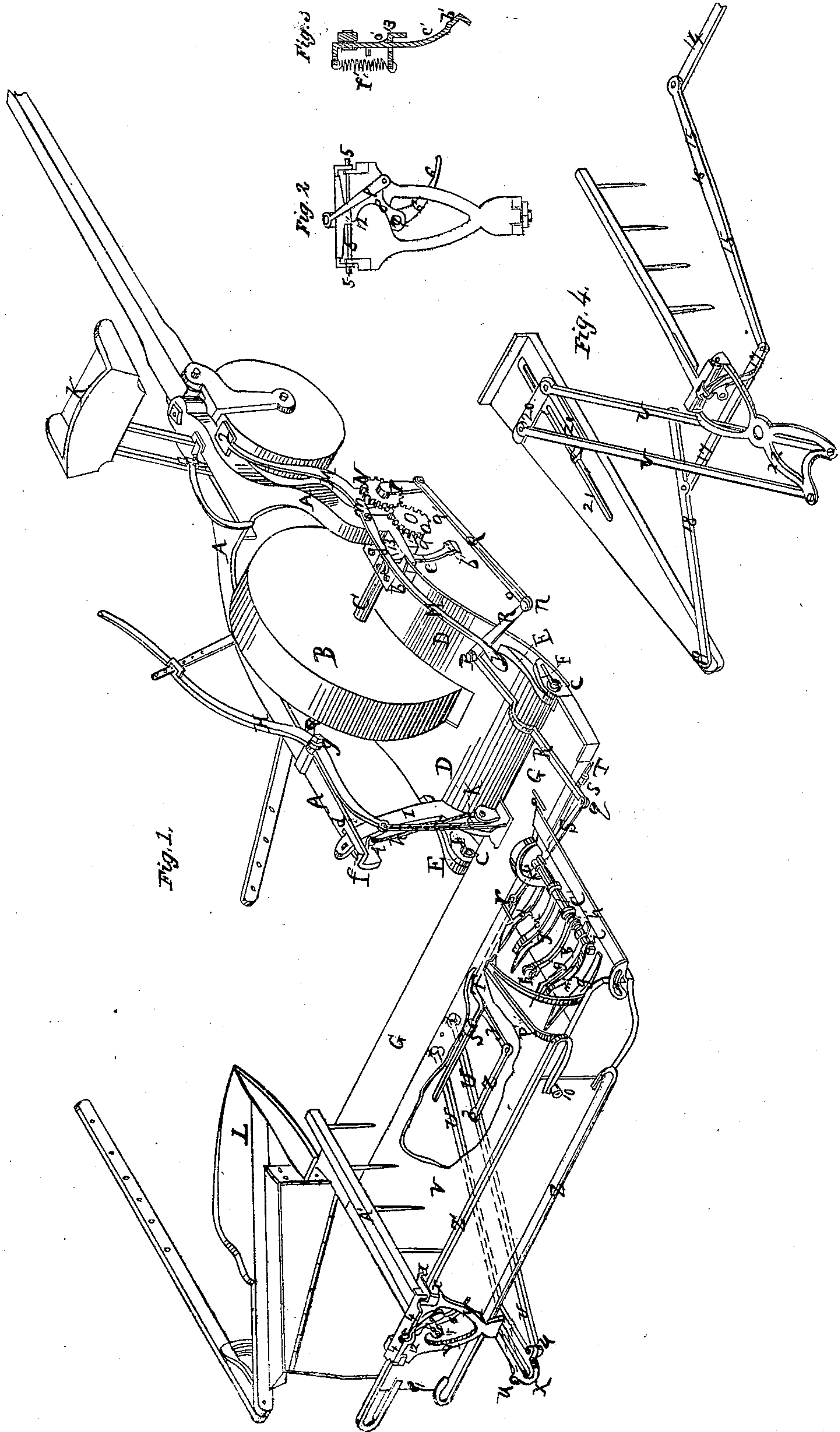


J. P. Manning,
Harvester Rake.

No. 20805

Patented July 6, 1858.



J. P. Manny,
Harvester Blade.

No. 20805

Patented July 6, 1858

Fig. 5.

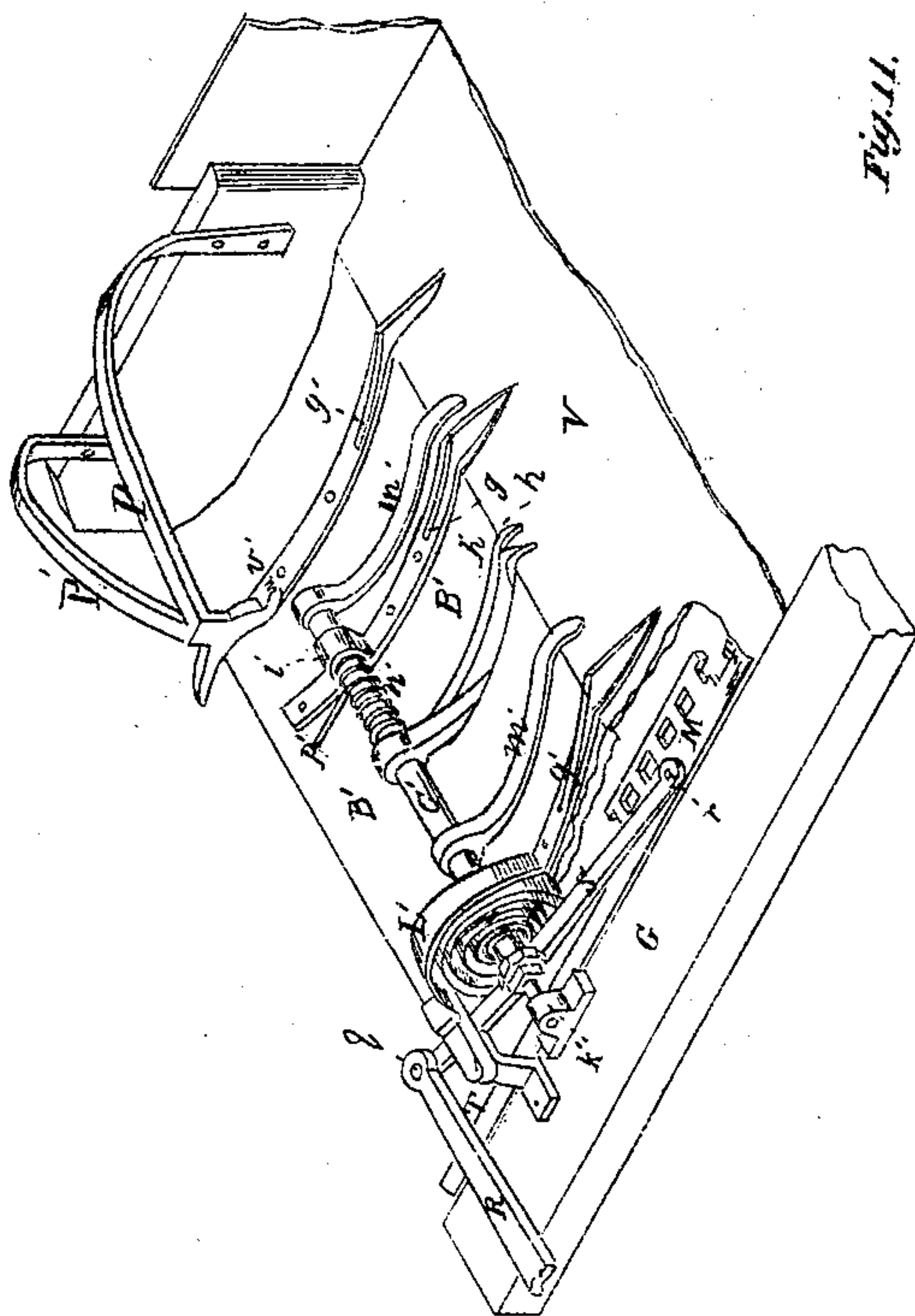


Fig. 4.

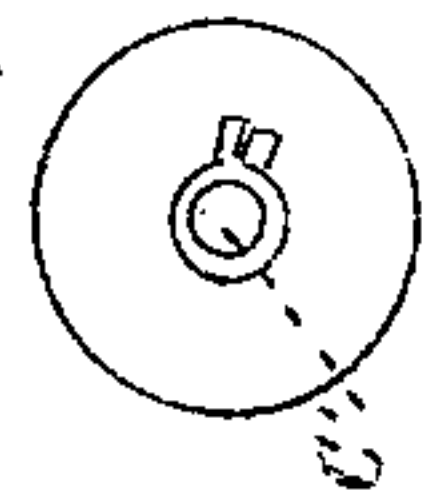


Fig. 10.

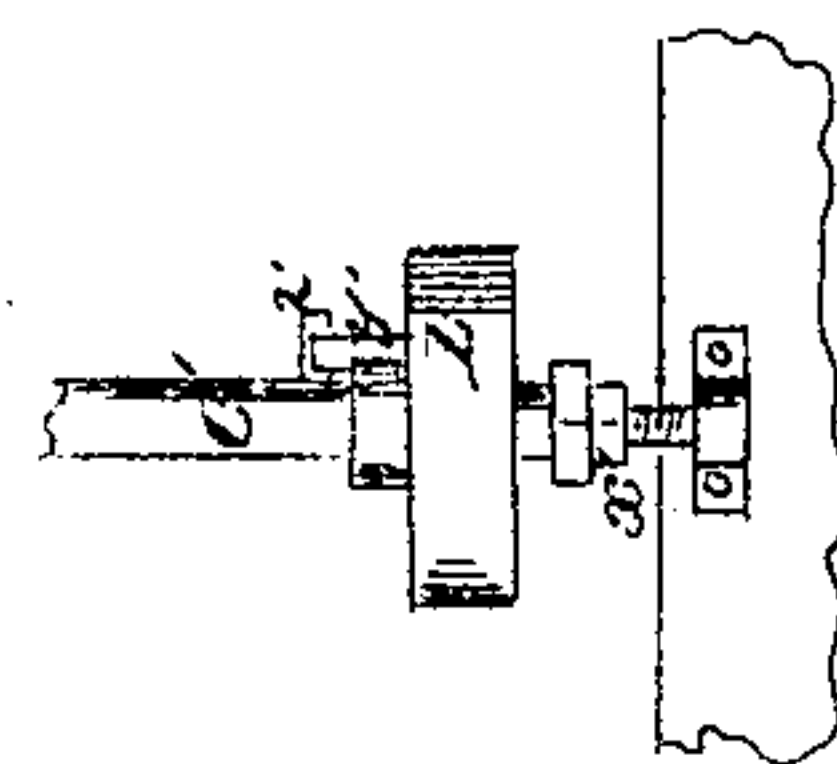


Fig. 12.

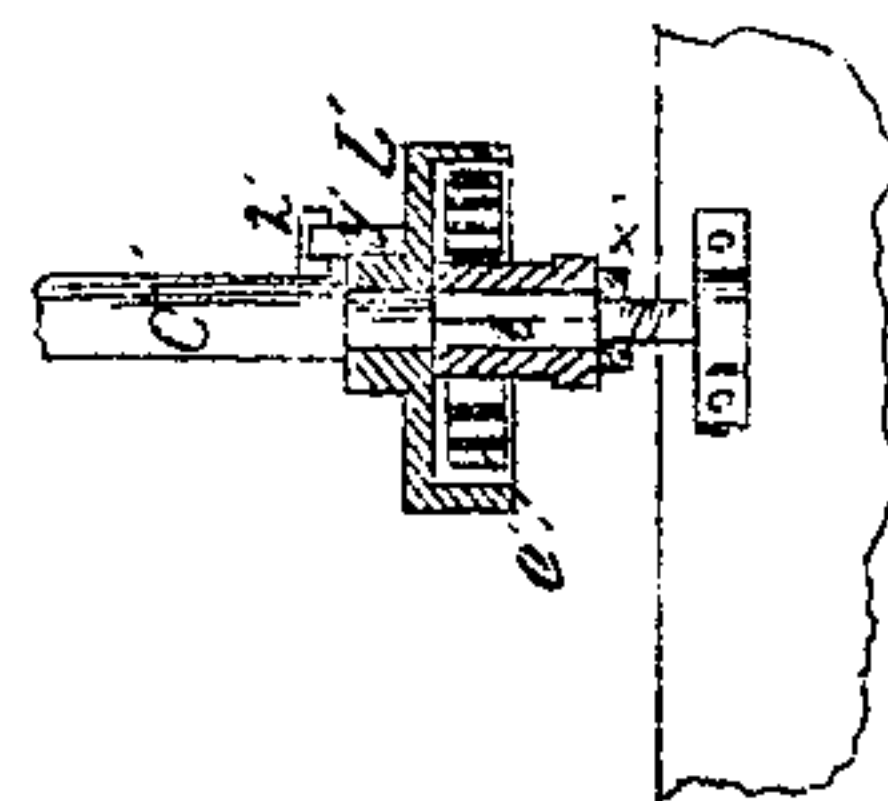


Fig. 11.

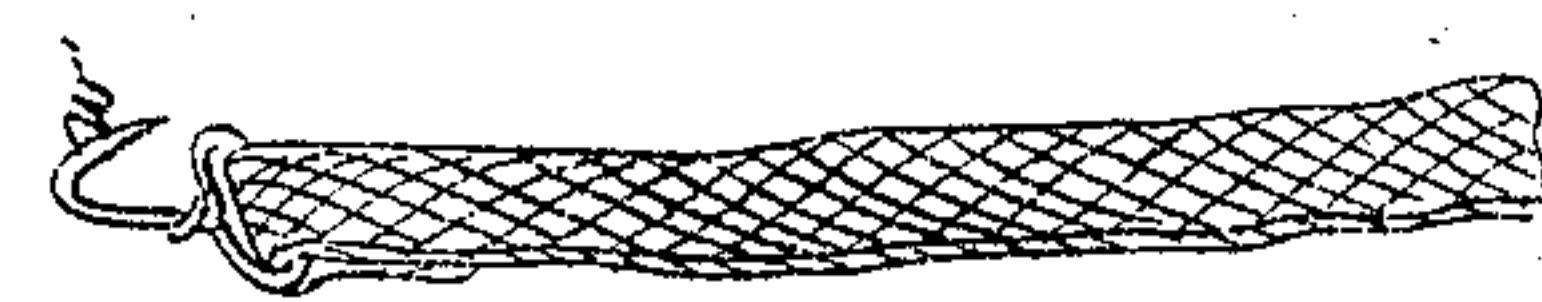


Fig. 8.

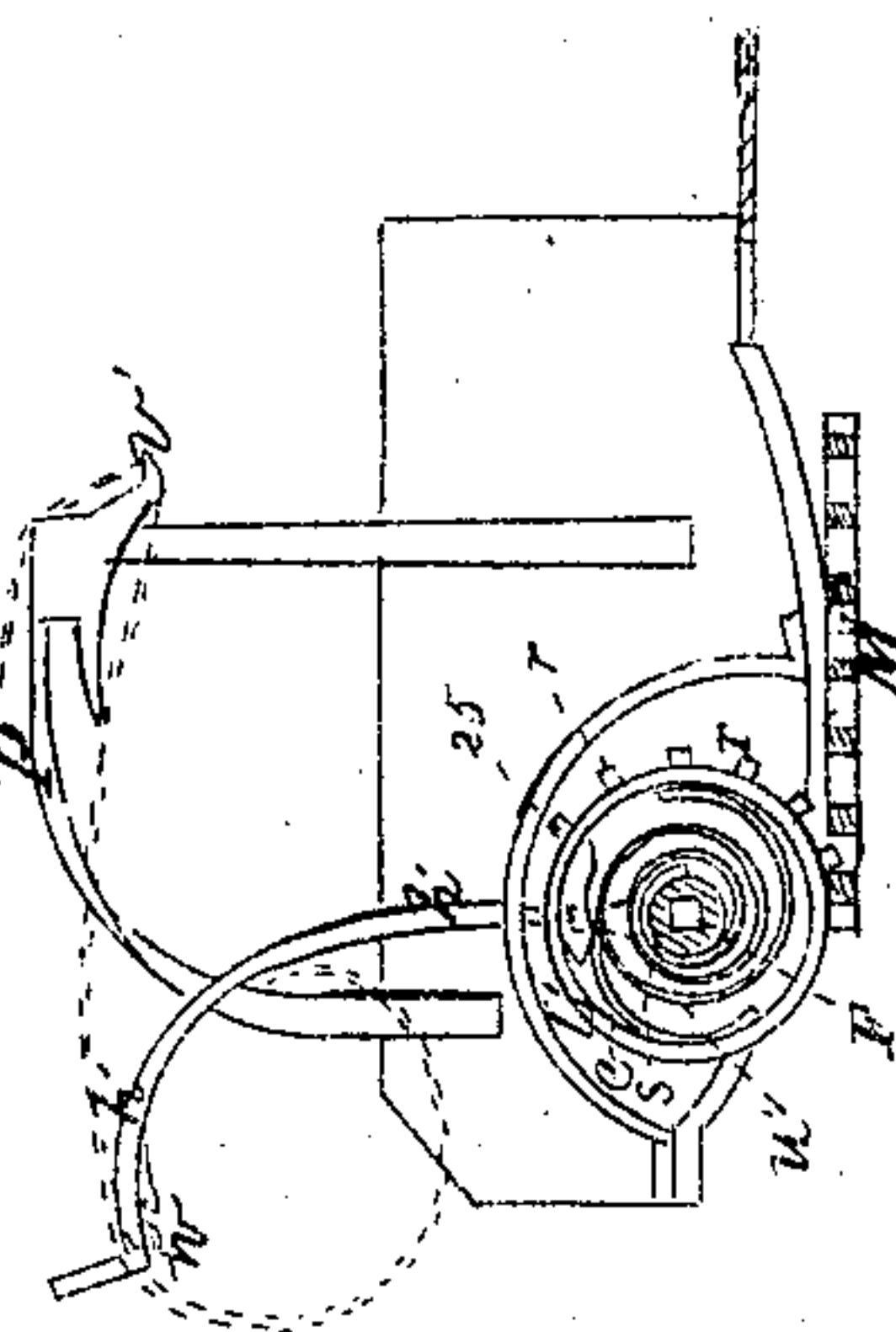


Fig. 7.

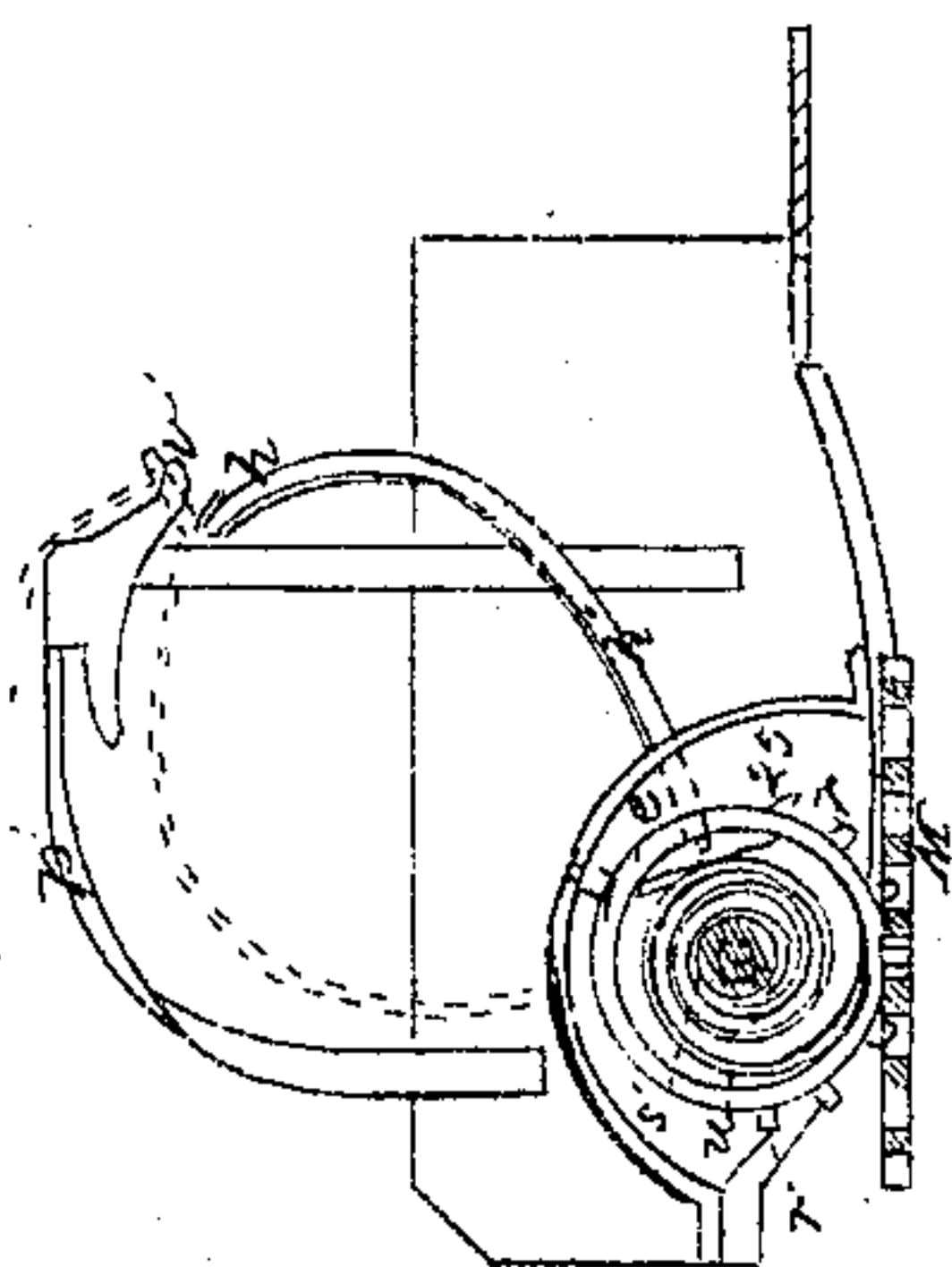
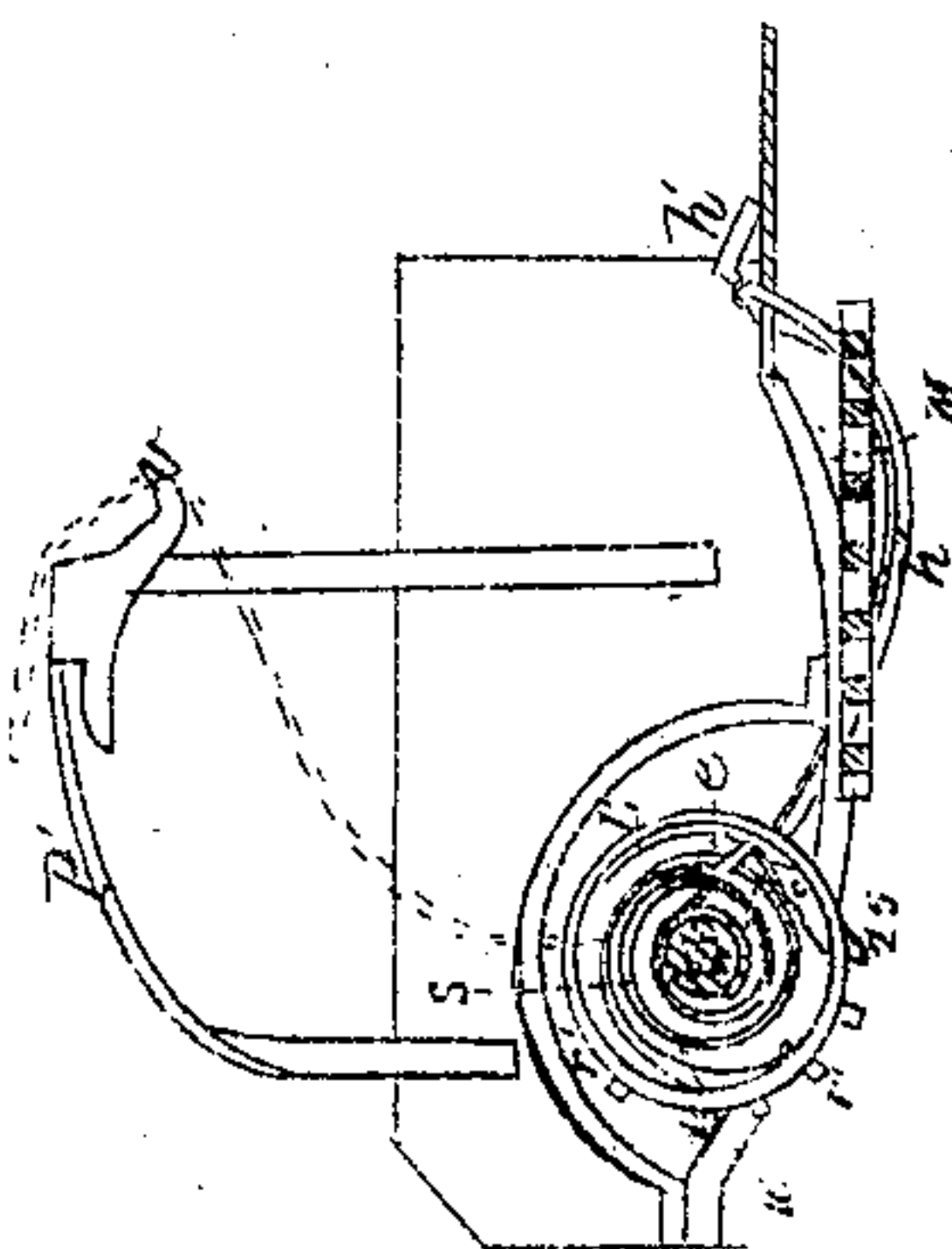


Fig. 6.



UNITED STATES PATENT OFFICE.

J. P. MANNY, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN RAKING AND BINDING ATTACHMENTS TO HARVESTERS.

Specification forming part of Letters Patent No. 20,805, dated July 6, 1858.

To all whom it may concern :

Be it known that I, JOHN P. MANNY, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in the Raking and Binding Apparatus of Harvesting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of said harvesting-machine with the raking and binding attachment. Figs. 2 and 3 represent details hereafter to be described. Fig. 4 represents a device for operating the rake, which may be used in place of the device represented in Fig. 1. Fig. 5 represents an enlarged perspective view of the binding apparatus. Figs. 6, 7, and 8 represent sections through the binding apparatus in three different positions. Figs. 9, 10, and 12 represent details hereafter to be described. Fig. 11 represents a section of the band which is used for binding the grain, together with the hook attached to one end thereof.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the frame of the machine. B represents the driving-wheel, the shaft C of which runs in the journal-boxes *a* of the frame A. D represents a curved shield, which is hung on the shaft C by means of the journal-boxes *b*. The brackets E on the lower end of said shield are hinged to the brackets F of the finger-bar G by means of sleeves *c*, which are secured to the brackets E, while the brackets F can turn thereon loosely for the purpose of allowing the finger-bar free play when it is raised or lowered. H represents a lever, which is pivoted to the frame A at *g*, and the long arm of which is within reach of the driver on the driver's seat K. By depressing said lever the cord *h*, which passes through the eye of the short arm of the lever H, is pulled. One end of this cord is fastened to the immovable frame A at *i*, while the cord passing around the pulley *k*, and running in a groove within the finger-bar and through the entire length

of said finger-bar, is fastened at its other end to a flexible arm of the divider L, which supports the third wheel of the harvester on the outer side of the divider L. Thus, by pressing down the lever H, the finger-bar is raised and retained in its horizontal position, it being guided by the standard I, which, passing through the slot *f* of the frame A, bears against the friction-roller *d*.

M represents a lever, which is pivoted at *m* to the frame A. The end 2 of said lever can be pressed down by the foot of the driver from the driver's seat, while the end 1 thereof can be operated by the hand of the man who attends to the binding apparatus of the machine. N is a cogged wheel, whose shaft is secured in the body of the lever M, and which receives its motion from the wheel O of the driving-shaft C. The crank P is secured to the shaft of the wheel N, and is pivoted to the pitman Q, the lower end of which is connected with the short arm of the lever R by means of a ball-and-socket joint, *n*, which can be adjusted by means of set-screws *o*. The lever R is pivoted at *p* to the shield D, and its connection with the pitman Q, by means of a ball-and-socket joint, is for the purpose of allowing sufficient play between them when the finger-bar G is raised or lowered, as then the relative positions between the turning-point *p* and the finger-bar are changed. The long arm of the lever R is pivoted to the pitman S at *q*, and the pitman S is again pivoted at *r* to the rod T, which, when the machine is in operation, is moved longitudinally in its bearings *s*. U represents two bars, which are pivoted at *t* to the under side of the platform V. The outer ends of these bars are pivoted at *u* to the slotted cross-head X, within the slot of which is secured the sliding frame Y, in such a manner that it can have free play longitudinally in said slot.

The sliding frame Y is guided in its rectilinear movements by the guide-rods Z and Z', facilitating the movement by the application of the friction-rollers *x* on rod Z'. The arm *y* of the rod T is hinged to the link Z, which latter is pivoted at 3 to one of the bars U, which thus receive motion from the rod T. The rake A' is permanently secured to the hinged head 4, which can turn freely on the

rod 5, Fig. 2. 6 represents a pawl, which is secured on the shaft 7 of the frame Y. To the same shaft is also secured the sector 8, to which a rod, 9, is pivoted, which is hooked into the eye of the hinged head 4. When the rake A' has reached the end of the platform, the pawl 6 strikes against the roller 10 on the rear side of the platform. This movement turns the segment 8 downward, which, by means of the rod 9, turns the head 4 on its rod 5, and thereby raises the rake A' to a vertical position. Again, when, in this vertical position, the rake has traveled back, and has reached the end of the guide-bars Z and Z', the pawl 6 comes to strike against the pin 11, which movement pushes the segment 8 upward, and as the circular face of said segment comes in contact with the projection 12 of the head 4, it causes the rake to drop down to the position represented in Fig. 1.

The lever M is pivoted at d' to the crooked bar c', which, passing through a slot of the plate 13, Figs. 1 and 3, rests on said plate by means of the projections o'. When the rake A' arrives at the farther end of the platform V, and is on the point of commencing to rake off the grain, the pin a' on pitman Q comes in contact with the inclined projection b' of the bar c', presses against said bar, and, bringing the projection o' right over the slot in the plate 13, the spiral spring f', which was extended all this time, now recoils and pulls down the bar c', and with it the lever M, which turns slightly on its fulcrum, thereby raising the wheel N, and throwing it out of gear from the wheel O, thus arresting the motion of the rake. When a sufficient quantity of grain has accumulated on the platform the attendant raises the end of the lever M, or the driver presses down the end 2, the wheels N and O are brought into gear again, and the rake is again set in operation.

In Fig. 4 is represented another arrangement for giving the rake a reciprocating motion over the platform. 14 represents the rod to which a rectilinear reciprocating motion is imparted in a similar manner as to the rod T, Fig. 1. This motion causes the lever 15 to vibrate on its fulcrum 16. Lever 15 operates bar 17, which is linked to the lever 18 of the fulcrum 19. The lever is vibrated on said fulcrum, which motion causes the slide 20 to move on the guide-rod 21 and the head 22, and the rakes attached thereto have a reciprocating movement imparted to them, which, by means of the hinged radius-bars U, is parallel to the platform.

The binding apparatus to this machine is attached to a small platform, B', at the end of the platform V. It is provided with metallic straps g', running a short distance on the main platform, and which are elevated at that part to raise the grain over the end of the forked or arched lever h', and also to aid in forming a concave for the grain to lie in when the rake leaves it. The forked lever h'

is secured to the shaft C', Figs. 1 and 5, the journals of which shaft run in suitable boxes, k' and l'. m' represents two levers, which are also secured to the shaft C', and which serve the purpose of holding the bundle of grain straight, and prevent it from twisting while it is being raised by the lever h'. n' is a spiral spring, one end of which is secured to the shaft C', and the other end of which bears on the platform at p. This spring tends to keep the lever h' in the position represented in Figs. 1 and 5. L' is a hollow drum, which runs loosely on the shaft C'. It is provided on its circumference with cogs r, Figs. 6, 7, and 8, which, at the proper moment, are operated upon by the rake M', which latter is secured to the reciprocating sliding rod T, described above. The drum L' contains a spiral spring, w', which, at one end, is secured to the sleeve s', which is placed upon the square head t' of the shaft C', while the other end of said spring is secured to the inner circumference of the drum L'. When the rack M' operates the cogs r', it turns the drum L', which latter, by means of spring w', turns the sleeve s', and consequently the shaft C', by which the lever h' will be successively raised to the positions Fig. 7 and Fig. 8. As soon as the rack M' releases the cogs r', the spiral spring n' drives the lever h' to the position represented in Figs. 5 and 6.

P' represents a bent arm, which is secured to the rear side of the platform, in the manner represented in the drawings. The front end of this arm is provided with sharp points v', on which the tapes are to be secured which I make use of for binding the grain. These tapes consist of heavy webbing of the shape represented in Fig. 11, to one end of which a hook, w', is fastened. I intend to make these tapes strong enough to be used for a number of years. Each tape is of sufficient length to bind a bundle of grain of the required size.

The operation of the entire machine is as follows: A tape of the required length being stuck upon the points v' of the arm P', the band or tape is laid upon the lever h', as represented in Fig. 6, while the hook w' is fastened between the prongs of the lever h'. The wheels N and O, Fig. 1, being set in gear with each other, the rake A' commences to rake off the grain in the position represented in Fig. 1. When the rake has raked the grain from the platform V onto the platform B', and has been elevated to the vertical position by the pawl 6 of the rake-head coming in contact with roller 10, as above described, the rack M' will commence to operate the cogs r', and will therefore elevate the bent lever h', with the grain thereon, to the position represented in Fig. 7. As the movement progresses, and just before the rack M' releases the cogs r', the position of the respective parts is indicated in Fig. 8. When the rack M' releases the cogs r', the bent lever h' flies back to the position represented in Fig. 6, and the hook w', being sufficiently wide open, is driven by

the expansion of the grain into the tape, and the bundle is tied firmly. I thus cause the gavel by its own expansion, when released from the holding-fingers, to make or complete its own fastening by throwing the hook into the web or band, as described.

This operation is performed while the rake returns, and is finished when the rake has reached the end of its course. At this moment the pin a' on the pitman Q, Fig. 1, comes in contact with the projection b' , whereby the wheels O and N are thrown out of gear, and whereby the further motion of the raking and binding apparatus is arrested. The attendant now removes the tied bundle, and places another tape on the binding apparatus, and when a sufficient quantity of grain has accumulated on the platform V, he raises the end 1 of the lever M, and the operation is repeated.

As above described, the lever h' is operated by the spiral spring u' , instead of being operated by the direct action of rack M' and drum L'. This arrangement affords the means of binding large and small bundles equally tight, and by unscrewing the nut x' the sleeve s and the drum L' can be partly withdrawn. The sleeve s' can then be replaced in such a manner as to set the spring stronger or looser, which will then act accordingly upon the lever h' , while the clutches y' and z' prevent said lever from moving beyond the required limits. The first cog, 25, of the drum L consists of a small pawl, which is pivoted within said drum, and which is retained in its position by a spring, e , pressing against the small end of said pawl. This arrangement is for the purpose of allowing a small degree of play to the cog 25 when the rack M' is running under the drum L'.

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

1. In combination with a reaping-machine, a rake that automatically throws itself out of gear when it arrives at the outer or grain end of the platform, in the manner substantially as described.

2. Combining with a rake that automatically throws itself out of gear, and a gathering apparatus, a mechanism by which the driver from his seat, or the attendant at his stand on the machine, can throw said rake into action when desired, for the purpose and in the manner substantially as described.

3. In combination with a rake, and the gathering apparatus to form the gavel, the bent arm P, provided with the points v' , for the purpose of holding one end of the band that is to fasten the gavel when gathered, substantially in the manner and for the purpose described.

4. The bent lever h' , with its forked head, which, when operated as above described, shall carry the band between its prongs, and which, when released, shall be driven back by the spring n' , releasing the band, the hook of which shall then be driven into the band by the expansion of the gavel, substantially in the manner and for the purpose described.

5. Operating the lever h' by means of the coiled spring u' , for the purpose of adjusting the motion of said lever, so as to bind large and small bundles equally tight, substantially in the manner and for the purpose described.

JOHN P. MANNY.

Witnesses:

A. B. STOUGHTON,

THOS. H. UPPERMAN.