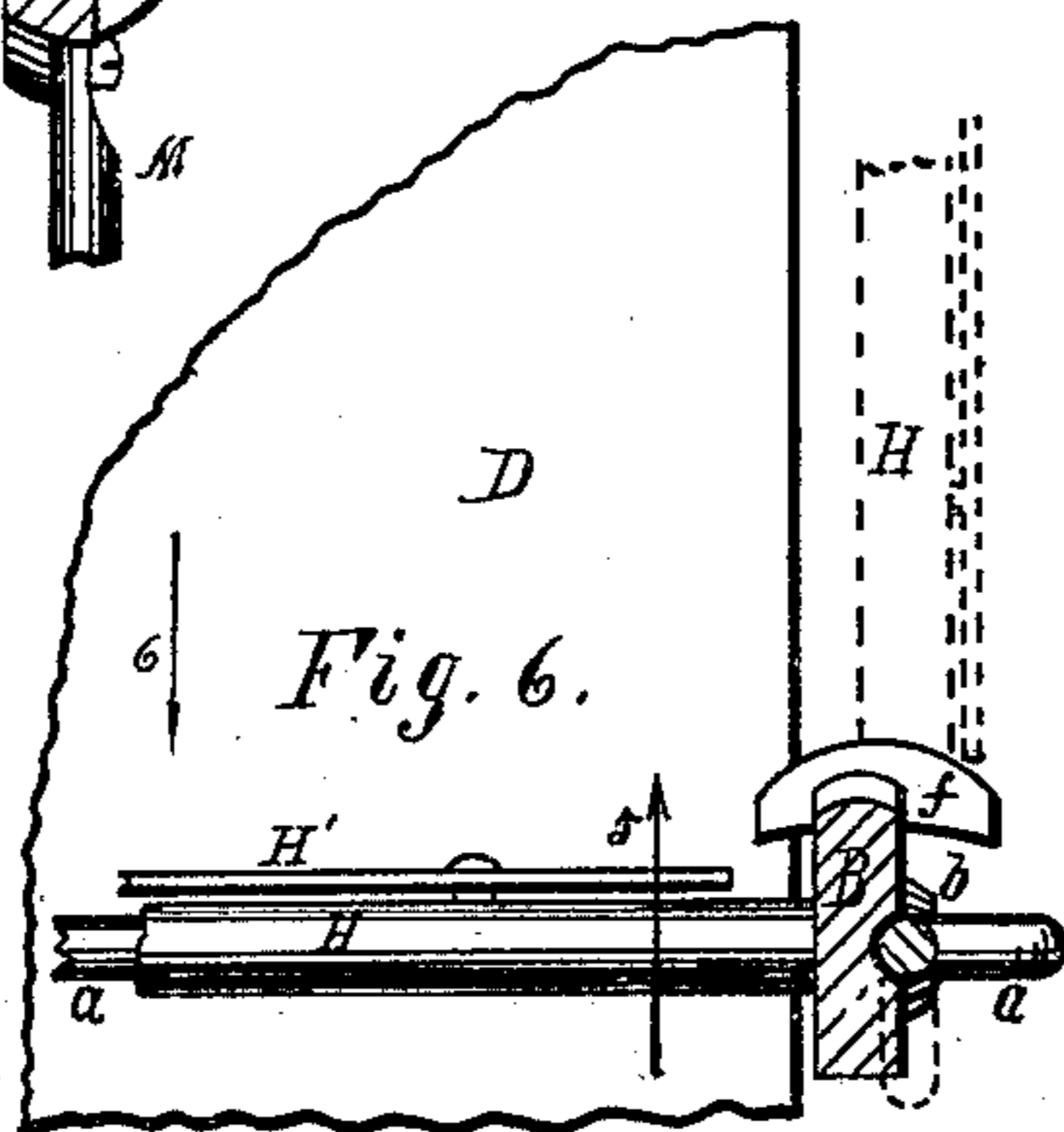
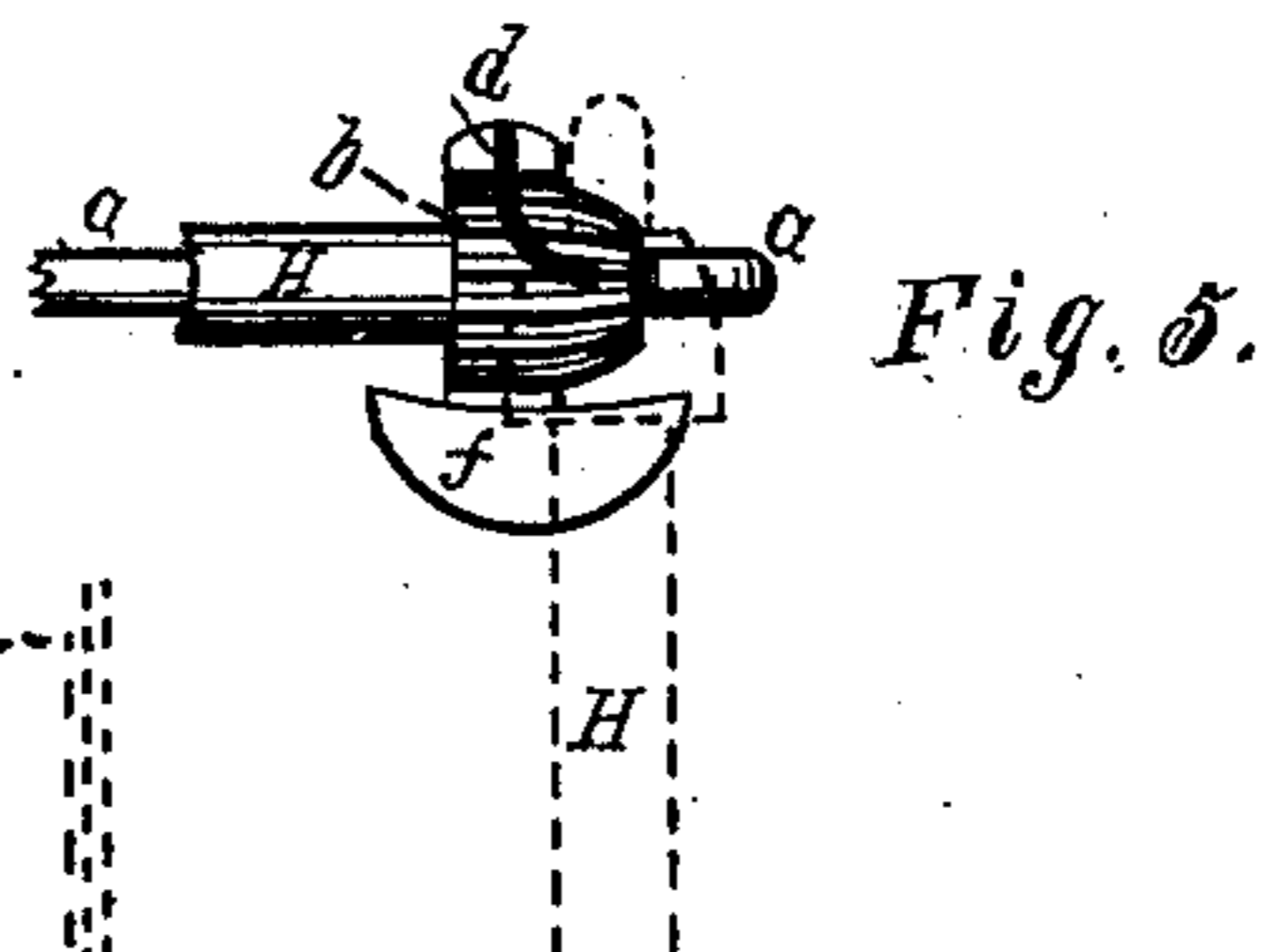
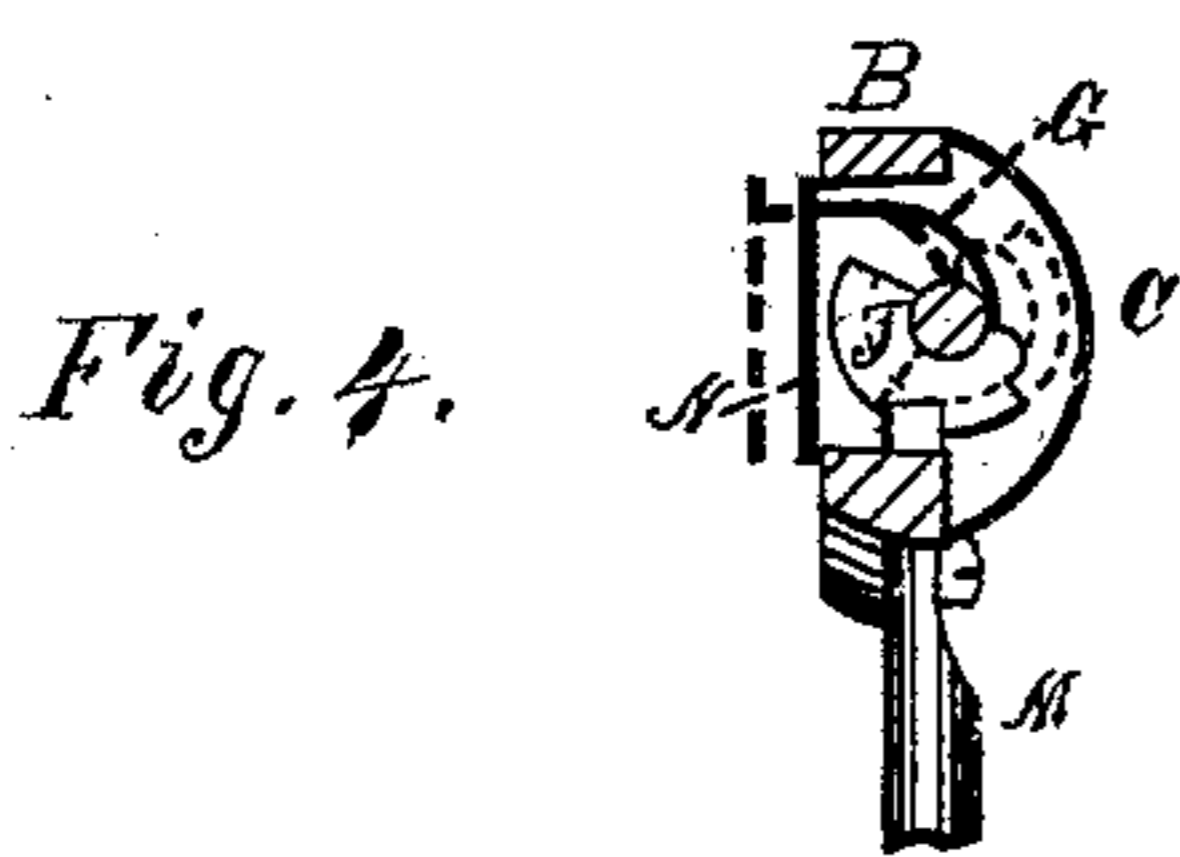
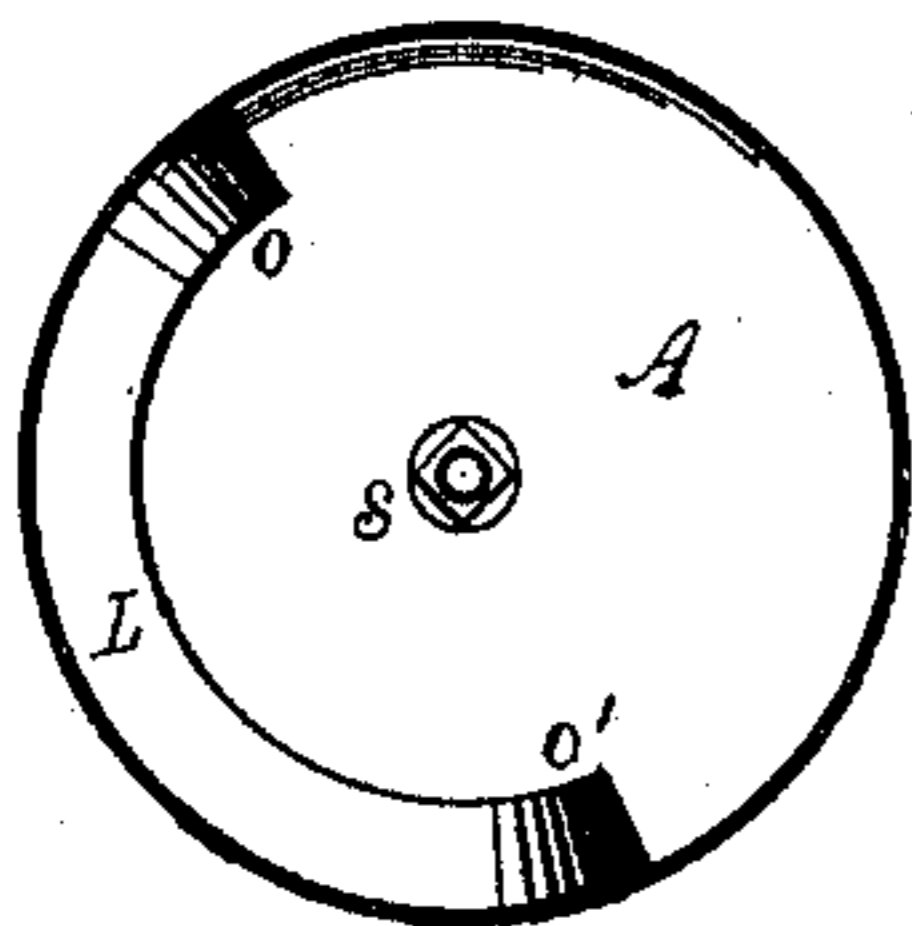
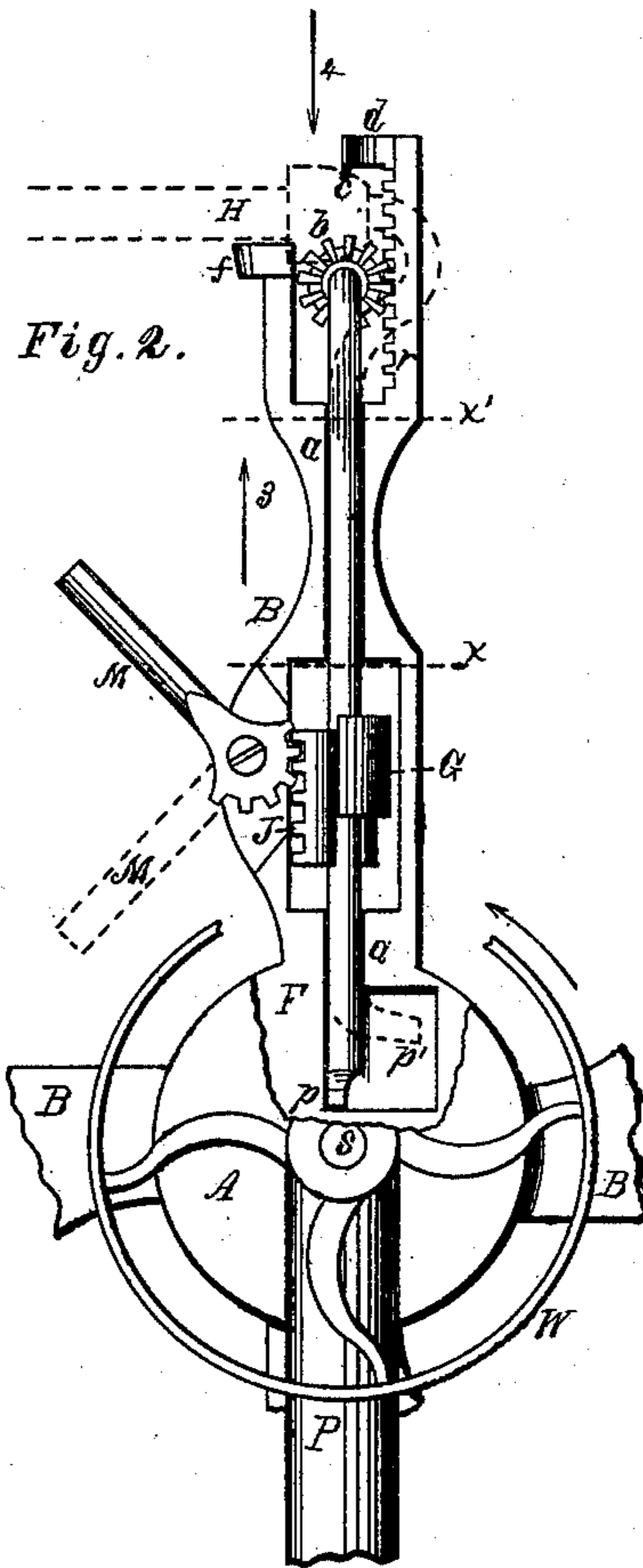
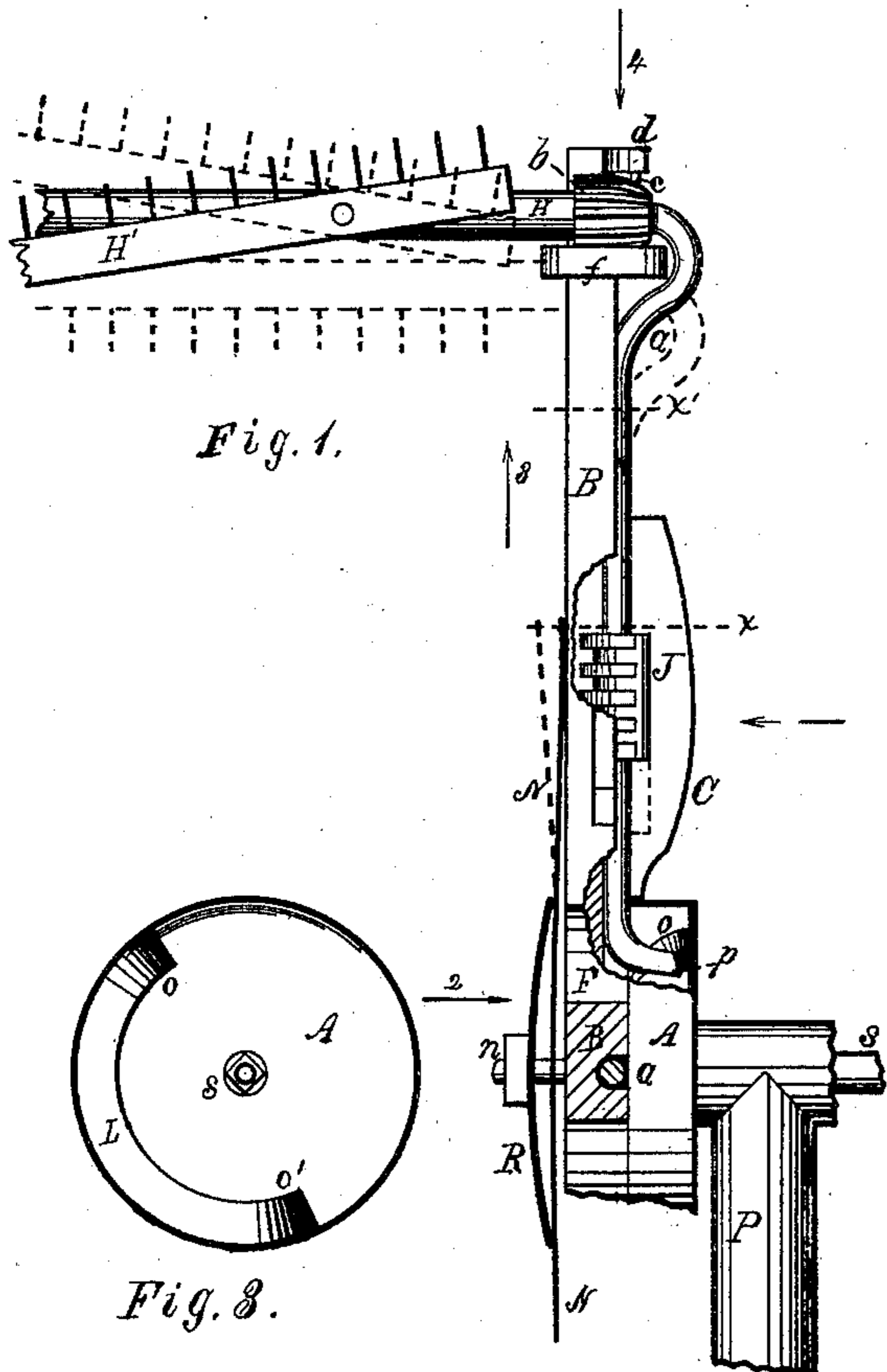


R. C. TAYLOR.  
REEL-RAKE FOR HARVESTER.

No. 170,971.

Patented Dec. 14, 1875.



Witnesses:

E. B. Whitmore  
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By Wm. Loughborough  
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# UNITED STATES PATENT OFFICE.

ROYAL C. TAYLOR, OF BROCKPORT, NEW YORK.

## IMPROVEMENT IN REEL-RAKES FOR HARVESTERS.

Specification forming part of Letters Patent No. **170,971**, dated December 14, 1875; application filed March 22, 1875.

*To all whom it may concern:*

Be it known that I, ROYAL C. TAYLOR, of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Reel-Rakes for Harvesters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of the upper end of the carrying or supporting post P of the reel-rake, and a sectional view of one revolving arm, and its vibrating head, of the said reel-rake. Fig. 2 is a transverse sectional view of the same, looking in the direction of the arrow in Fig. 1, the cap C being removed. Fig. 3 is a face view of the head A, with the reel-arms B and their hub removed, looking in the direction of arrow 2. Fig. 4 is a transverse section on the dotted line *x*, looking downward. Fig. 5 is an end or top sectional view of one arm looking in the direction of arrow 4. Fig. 6 is a transverse section on the dotted line *x'*, looking in the direction indicated by arrow 3, Figs. 1 and 2 being inverted, and showing a portion of the platform D.

This invention consists, essentially, in an improved overhung reel for grain-harvesters, which is convertible into a sweep-rake at any time by the driver or readjusted to act as a reel simply, as may be desired.

In carrying out my invention I provide a standard or post, P, which is fixed upon the frame of the machine near the front inner corner of the platform D, a small section of which is shown in Fig. 6. This post has a sort of T-head at the top, through which is formed a horizontal bearing for the reel-shaft *s*. This carries the driving-wheel W, which may be a sprocket wheel or pulley, or an ordinary toothed gear, and driven from the ground or carrying wheel of the machine; and on the outer end of the shaft is hung the reel-head E, which may be provided with four arms, B, three of which are broken away in Figs. 1 and 2, or any other number may be employed. These arms are recessed, as shown, on the side toward the supporting-post, so as to receive the bent rods *a* and their semi-cylindri-

cal racks J. These latter are made by forming the teeth of the racks around their convex surface, and the teeth of the segmental gear of the hand-levers M are made to gear into these racks, the object of which will appear hereinafter. The inner end of the rods *a* is bent, so as to form a sort of lever, as shown at *p*, Fig. 1. Their outer end is bent as shown, so as to permit the conical-shaped pinion *b* to always have its apex or small end on a line with the axial center of the rod *a*. The pinions are formed upon the end of a hollow head or sleeve, H, to which the rake-heads H' are pivoted, and the rod *a* runs through the sleeve, which is riveted or otherwise secured thereto. The arms B are bifurcated at the outer end, as shown in Fig. 2, one leg of which has a toothed rack formed upon its inner face, into which the pinion *b* gears. The cam L is fixed in the head A in the position shown in Fig. 3, and when the rake-heads are thrown out, as shown in full lines in Fig. 1, the levers *p* are forced thereby, as the arms B are revolved, to swing the rake-heads H around, as shown by the dotted lines in Fig. 6. There is a spring, N, extending from opposite the rack J in one arm to that in the opposite one, there being a spring for each pair of rake-arms, and they are firmly secured in place by the spring-cap R, held by the nut *n* upon the end of the shaft *s*. There is a curved lug, G, Figs. 2 and 4, fixed to the ends of these springs. The outer edge of each lug rests against one side of the segment J in its respective arm. The object of the springs is to throw the rake-heads back when the lever *p* is released from the cam L. The object of the spur or lug *c* on the spring-guard *d*, the latter also shown in Fig. 6, is to lock into the pinion *b* when the arm or heads H are thrown out, as shown in full lines in Fig. 1, and in dotted lines in Fig. 2, to act as rakers, to prevent the heads and pinions from becoming reversed or inverted by turning upon the horizontal section of the rod *a*. The head *f* acts as a sort of guard or rest for the pinions *b* while the head H is making its changes while acting as a sweep-rake.

The general operation of my invention is as follows: When the heads H are adjusted to the position shown in Fig. 1 in full lines,

which is the position for raking, the crank arm or lever *p* comes in range with the cam *L*, and as the arm *B* swings down toward and near the front edge of the platform *D* the teeth of the rake-head *H'* strike against the butts of the cut grain, and as the arm continues to revolve the crank arm or lever *p* strikes the end *o'* of the cam *L*, which forces the rake to sweep laterally across to the side of the platform, as indicated by the dotted lines in Fig. 6, while the arm *B* continues its revolution upon the horizontal axis, and as it rises above the axial center lever *p* passes the end *o'* of the cam, thus releasing the crank or lever; and the spring *N*, through the lug *G*, pressing against the semi-cylindrical rack *J* on the opposite side of the rod *a*, as before mentioned, forces the rack back to its normal position, ready to receive and discharge the next gavel. It will be seen that the cam *L* may be so arranged as to cause the rake to make its lateral sweep sooner or later, as it approaches the platform, and it may be made very gradual or abrupt at the end *o'*, which will produce a gradual or a sudden change in the lateral sweep of the rake.

When the heads *H* are drawn in, as shown by dotted lines in Fig. 1, so as to act as reels simply, which change is made by placing the hand-levers *M* in the position shown in full lines in Fig. 2, the lever *p* is caused to describe a circle inside of the cam *L*, and therefore the heads *H* are allowed to retain their parallelism during the whole revolution of the arms, and when they are changed to this position the pinions *b* are made to revolve by the racks in the carrier-arms *B*, thus inverting the rakes to the position shown by the dotted lines in Fig. 1. These changes from a reel to a reel-rake, and vice versa, may be made by the driver while the machine is in operation.

The object of pivoting the teeth-head *H'* to the reel-arm *H* is to permit it to adjust itself to the platform while the former is making its lateral sweep or movement over it.

It is obvious that each head may be convertible into a rake or reel, or only one, or each alternate one, as may be desired.

It will be seen that by means of the semi-

cylindrical form of the racks *J* the teeth of the hand-levers remain in gear therewith whether the rods *a* are turned upon their axis or not.

In Fig. 6 the direction of rotation of the reel-rake is indicated by the arrow 5, and that of the travel of the machine by the arrow 6. There may be a friction-roller applied in the end of the lever *p* if desired.

What I claim as my invention is—

1. In reel-rakes for harvesters, the combination of the sweep-rake head *H* and sliding rod *a*, formed with arm *o*, with the fixed cam-track *L*, constructed and arranged to operate substantially as and for the purposes set forth.

2. In combination with the radially-adjustable rod *a* the revolving or reversible head *H*, rack *r*, and pinion *b*, substantially as and for the purposes set forth.

3. The pivoted head *H'*, carried upon the primary reversible head *H*, which has its axis upon the horizontal arm of the rod *a*, as shown and described, for the purpose of permitting the former to adjust itself to the position of the platform when required to act as a raker, and to be inverted when only required to reel.

4. In combination with the sweep-rake head *H* and pinion *b* the fixed locking-tooth *c* upon the shank *d*, which is attached to the arm *B* for the purpose of preventing the rake-head from revolving upon its axial shaft when the pinion is carried out of gear with its governing-rack *r*, as when in the act of discharging a gavel.

5. In combination with the sweep-rake head *H*, rod *a*, and cam-track *L*, the reacting spring *N*, arranged to operate substantially in the manner and for the purposes set forth.

6. The spring-tension-regulating cap *R*, in combination with the springs *N* and rods *a*, as and for the purposes set forth.

7. The segmental hand-lever *M*, in combination with the semi-cylindrical rack *J* upon the radially adjustable and rocking rod *a*, for the purposes set forth.

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Witnesses:

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A. MANDEVILLE.