

(Model.)

2 Sheets—Sheet 1.

J. H. HAUGHWOUT.
Grain Binder.

No. 233,852.

Patented Nov. 2, 1880.

Fig. 1.

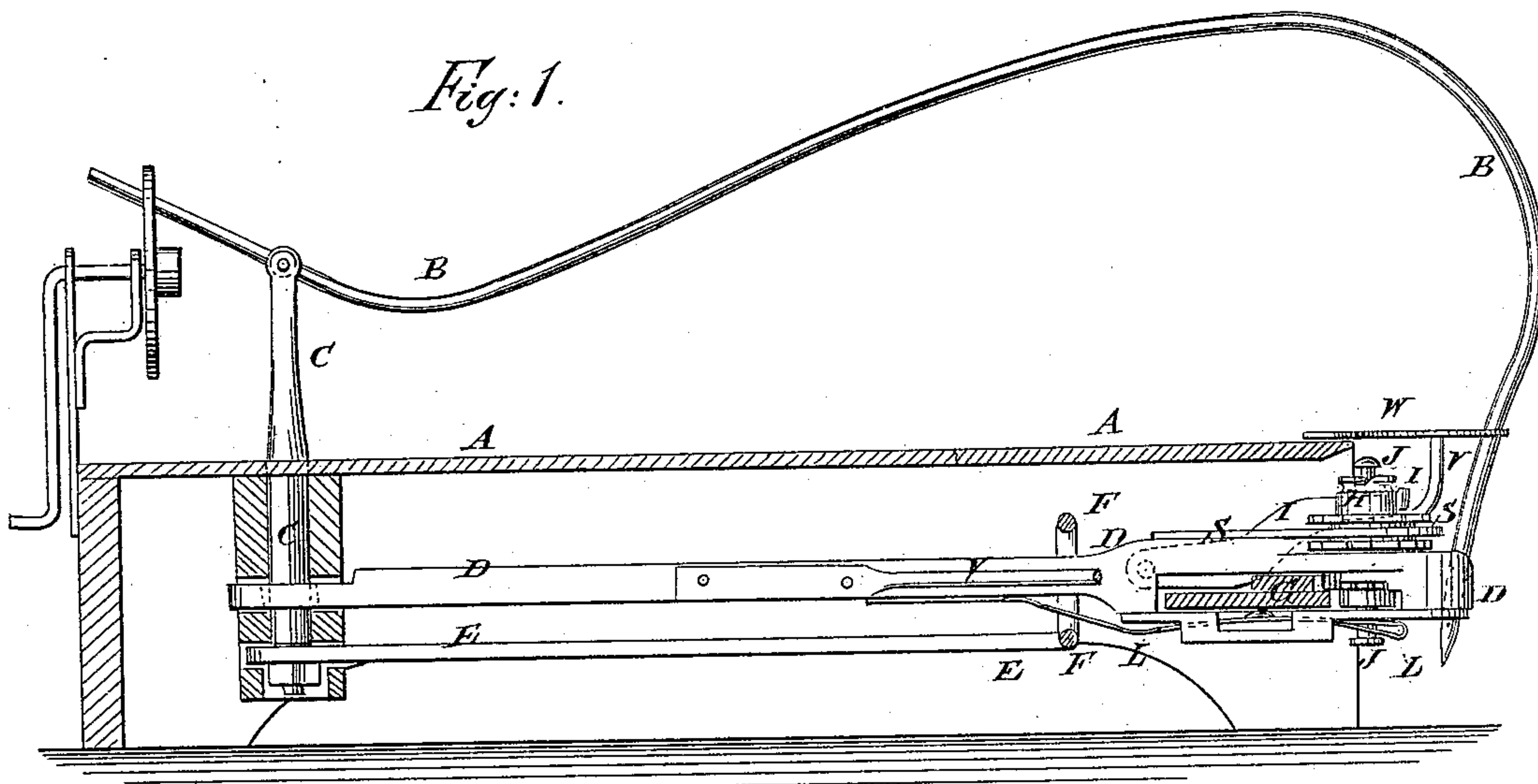


Fig. 2.

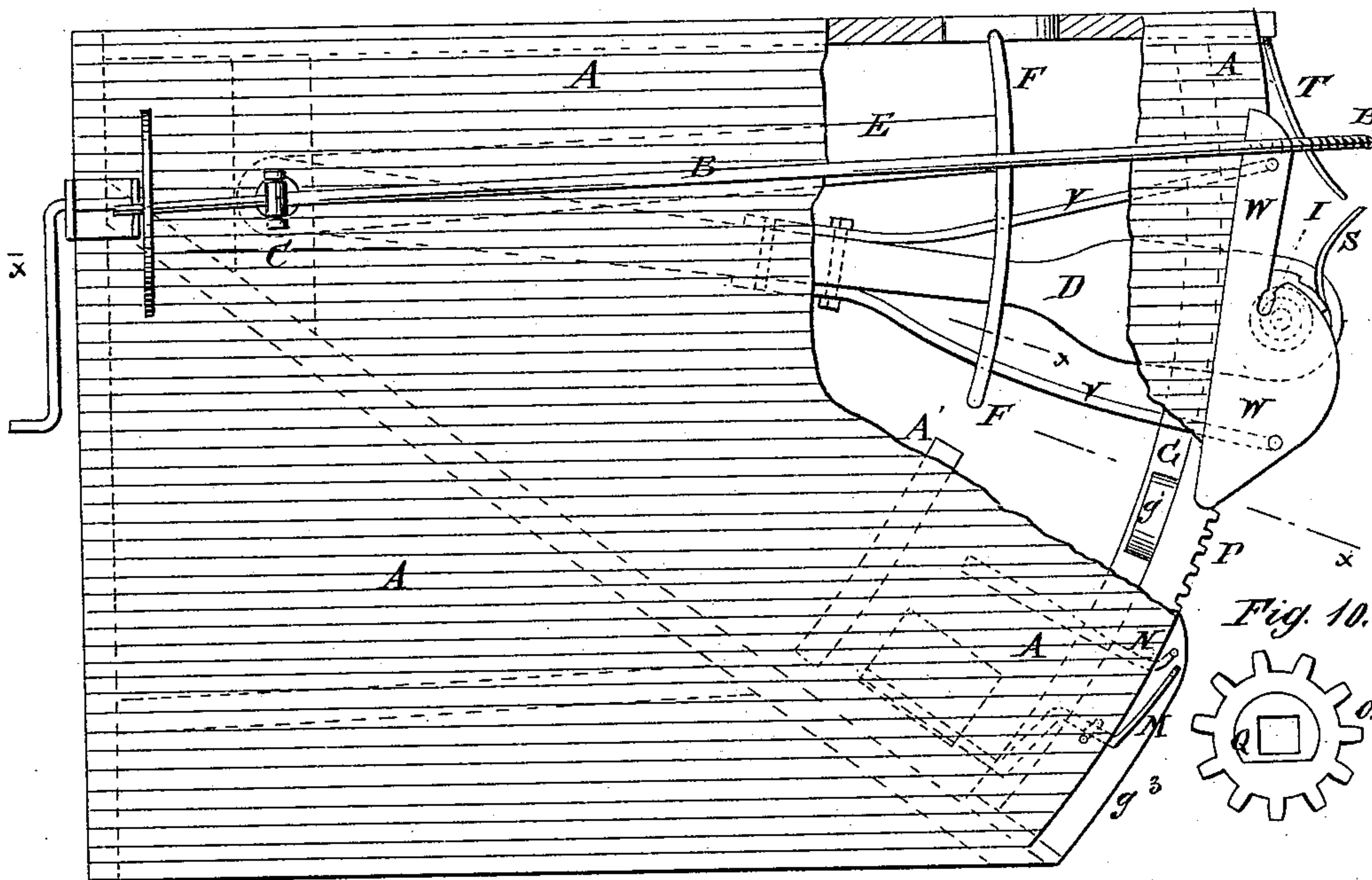
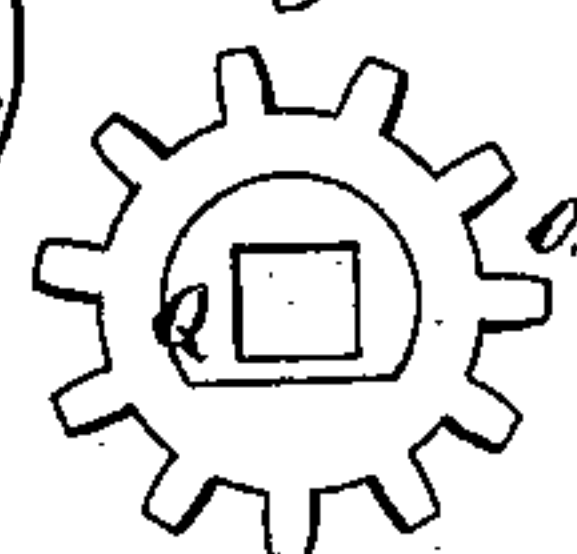


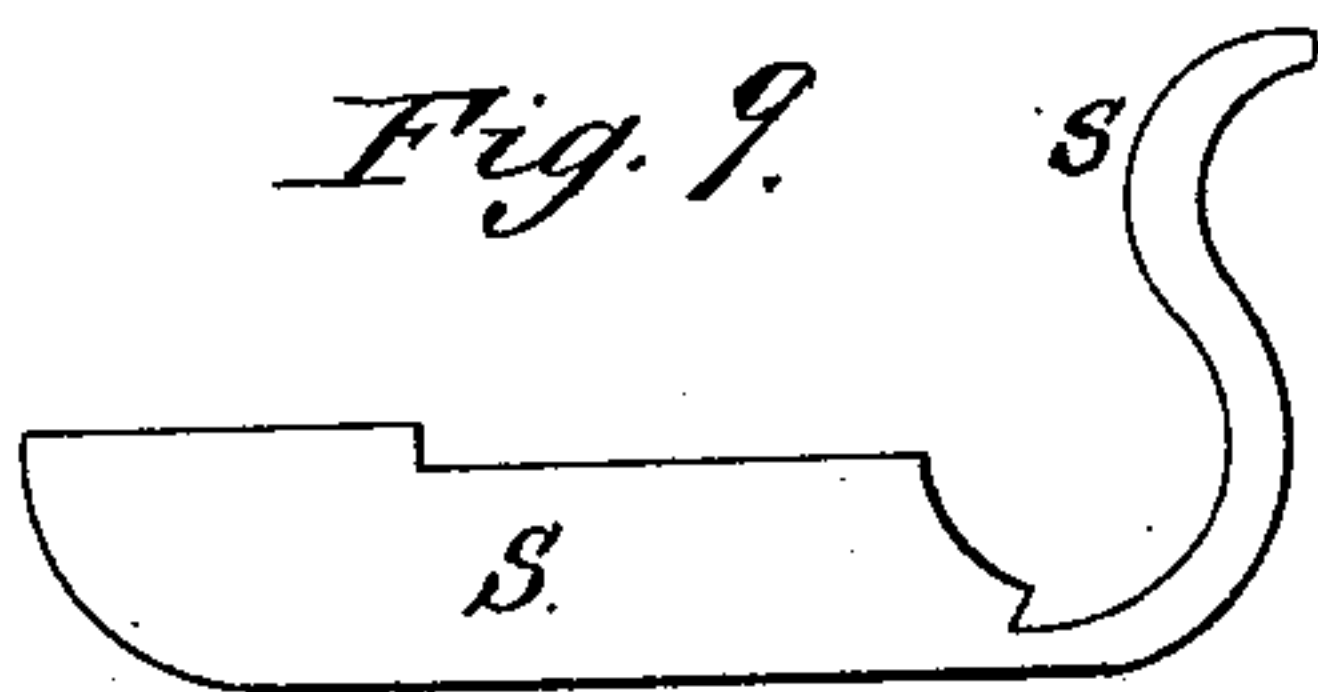
Fig. 10.



WITNESSES:

Cnas. Noto
C. Sedgwick

Fig. 9.



INVENTOR:

J. H. Haughwout
BY *Munroe*
ATTORNEYS.

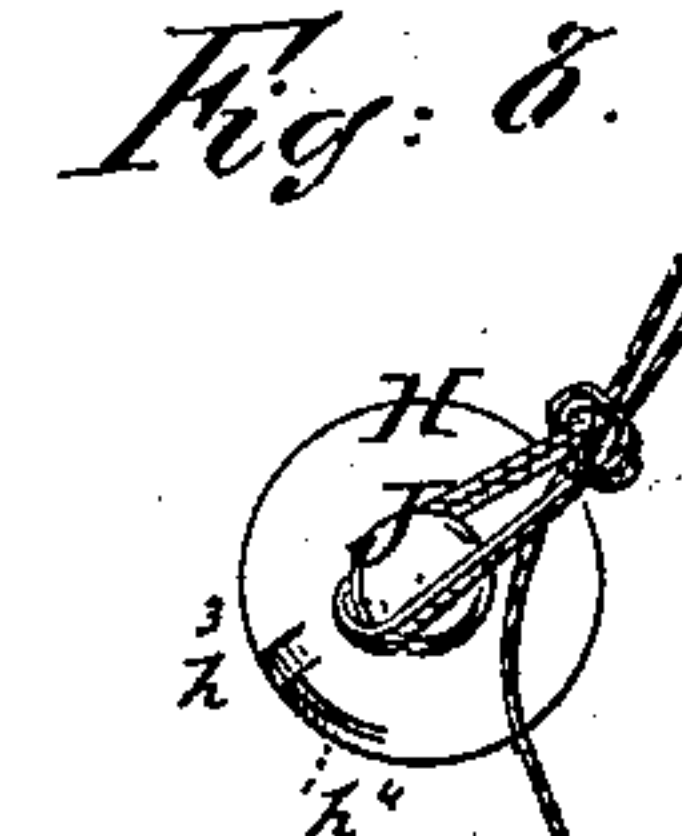
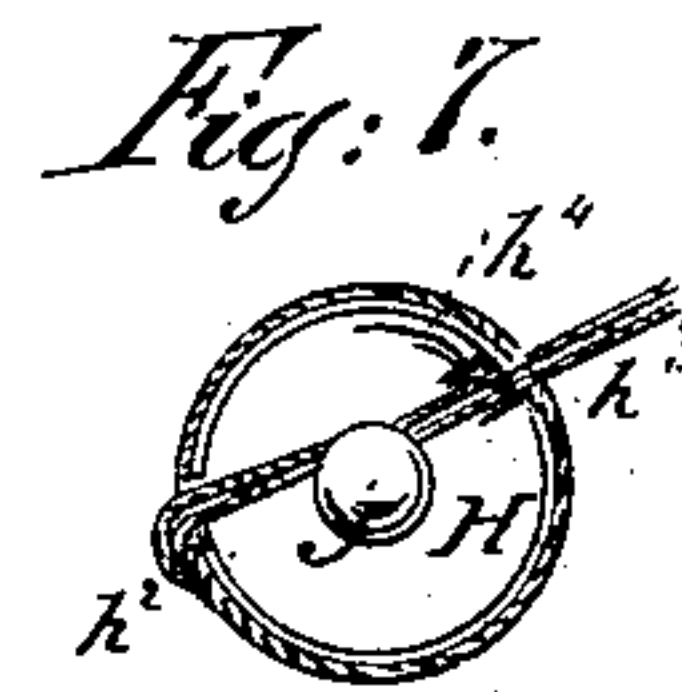
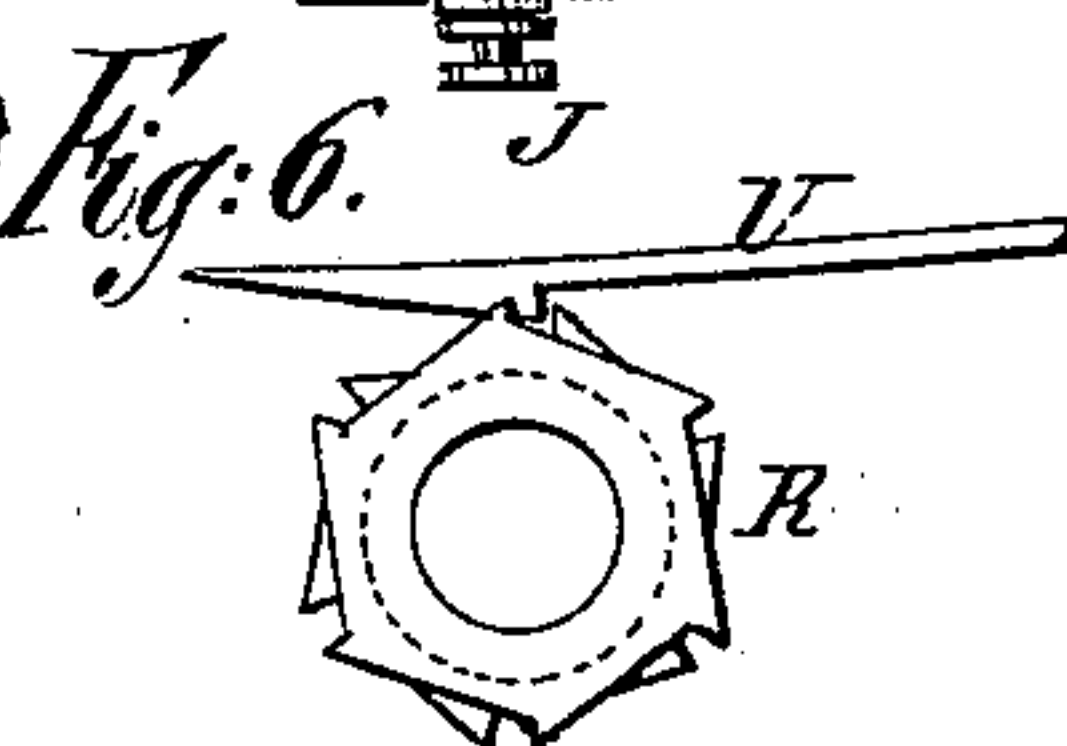
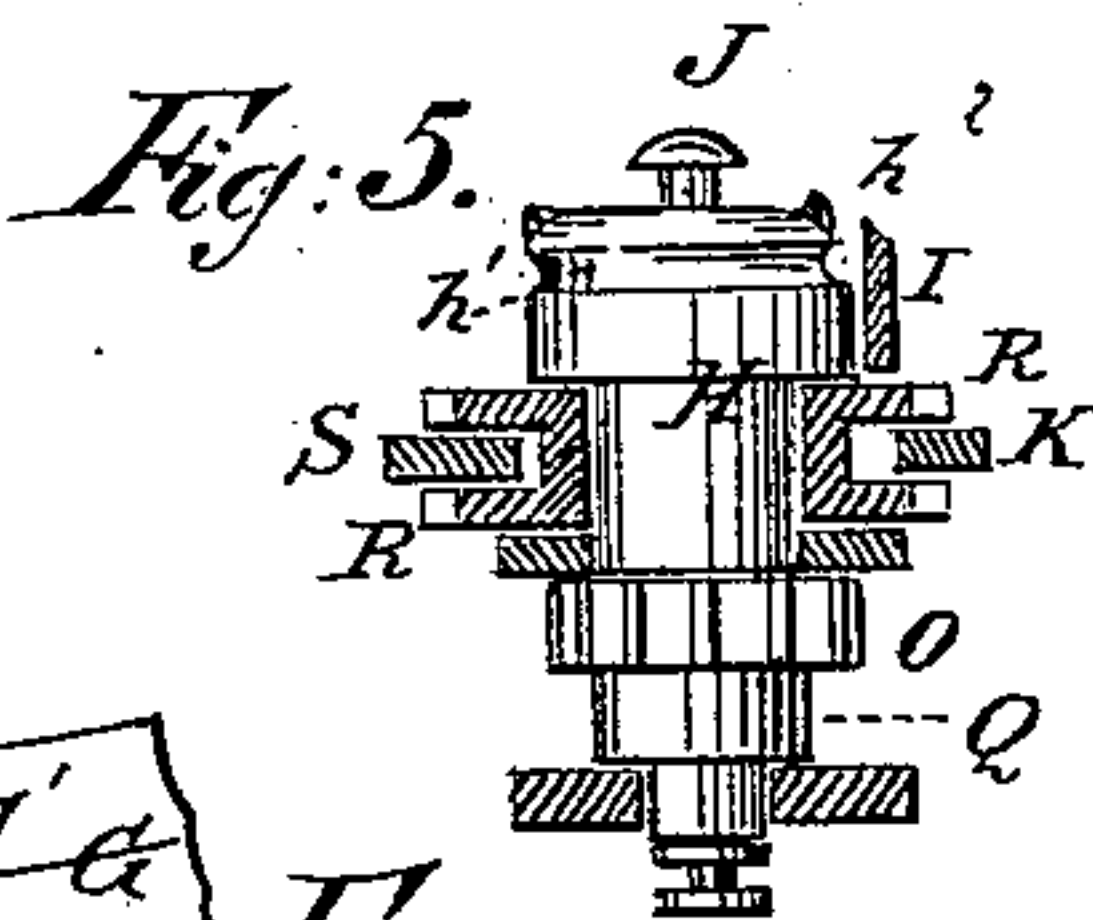
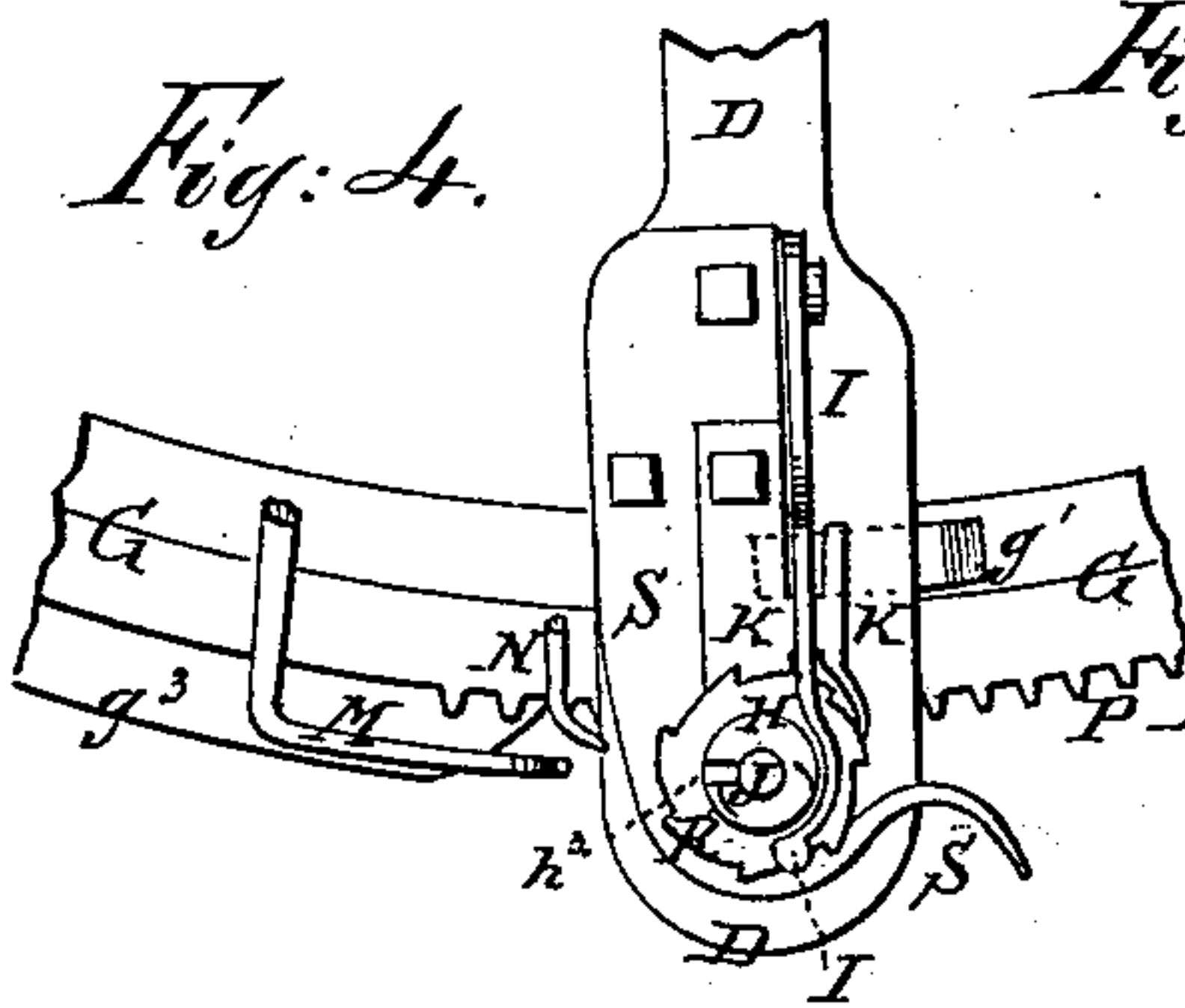
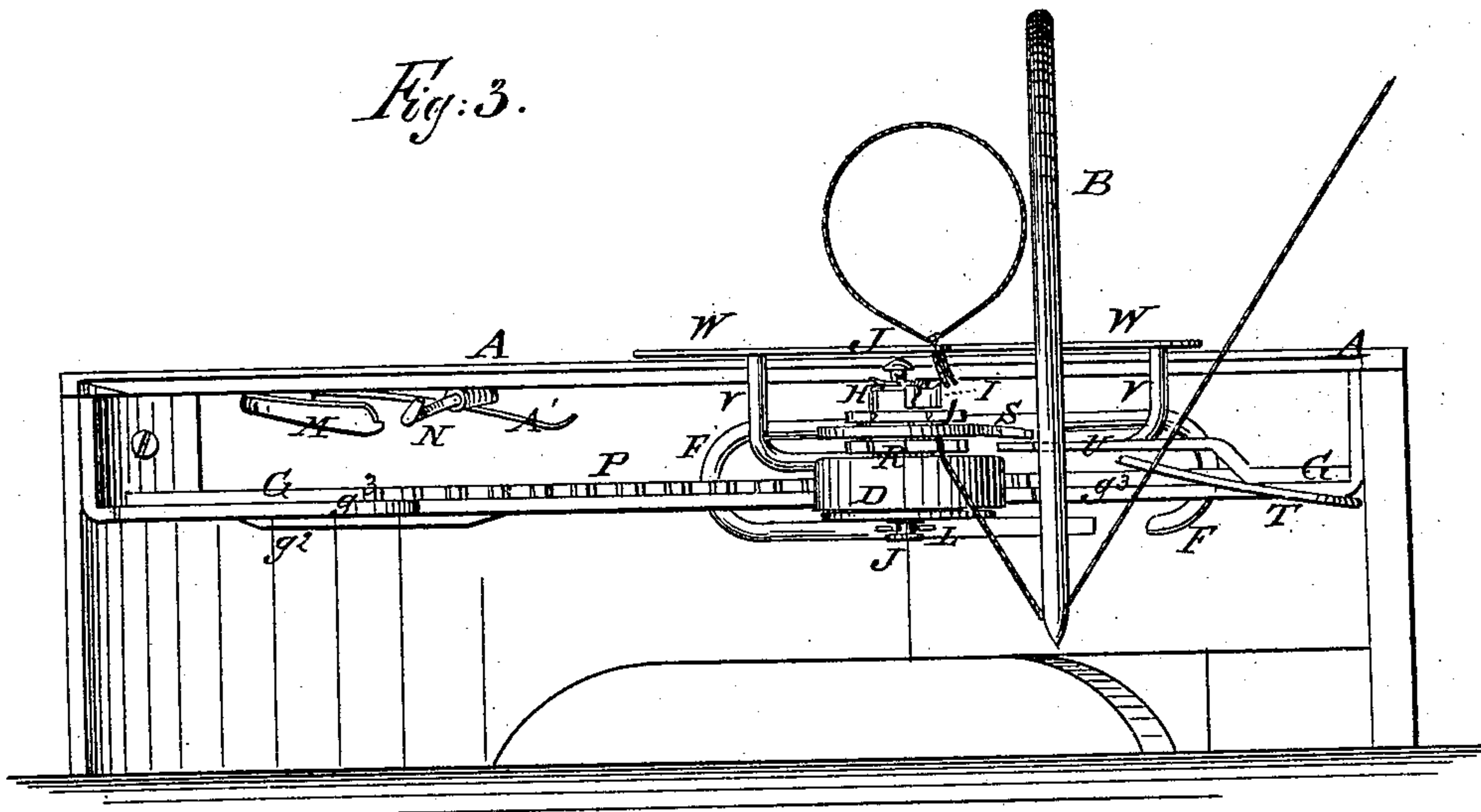
(Model.)

2 Sheets—Sheet 2.

J. H. HAUGHAWOUT.
Grain Binder.

No. 233,852.

Patented Nov. 2, 1880.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR:

J. H. Haughawout
BY *Munroe*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH H. HAUGHAWOUT, OF FAIRMONT, NEBRASKA.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 233,852, dated November 2, 1880.

Application filed April 17, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH HENDERSON HAUGHAWOUT, of Fairmont, in the county of Fillmore and State of Nebraska, have invented a new and useful Improvement in Twine-Binders for Harvesters, of which the following is a specification.

Figure 1, Sheet 1, is a sectional view of my improved device, taken through the broken line *xxx*, Fig. 2. Fig. 2, Sheet 1, is a top view of the same, part of the grain-platform being broken away to show the construction. Fig. 3, Sheet 2, is a front view of the same. Fig. 4, Sheet 2, is a detail top view of the mechanism for tying the knot. Fig. 5, Sheet 2, is a detail vertical section of the same. Fig. 6, Sheet 2, is a detail top view of the double ratchet-wheel and the hook-pawl that turns it. Fig. 7, Sheet 2, is a detail top view of the shaft and holder, showing the holder as just taking hold of the twine. Fig. 8, Sheet 2, is a detail top view of the shaft and holder, showing the knot as tied. Fig. 9, Sheet 1, is a detail top view of the device for holding the waste end of the twine. Fig. 10, Sheet 1, is a detail bottom view of the pinion and slide.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved device for attachment to harvesters for binding grain with twine, which shall be effective in operation, tying the twine in a firm knot, and avoiding the use of wire and the consequent annoyance from such use.

The invention consists in the combination of the sweep provided with the guard-plate, the lever and loop, the hollow shaft provided with the groove, hook, notch, and knife, the pinion and slide, the track provided with the rack, the inclined projections, and the edge projections, the double ratchet-wheel, the guards, the holder and spring, the guard, the hook-pawl, the stop-finger, and the lifting-finger, with each other and with the rock-shaft and the platform of a harvester, as hereinafter fully described.

A represents the grain-platform of a harvester, and B the needle-arm, by which the twine is passed around the gavel. The device is designed to be applied to any wire-binding harvester, and there is nothing new about the

construction of the mechanism for collecting the grain in gavels and passing the twine around it.

C is a reciprocating shaft, which receives motion from the driving mechanism in various ways, according to the construction of the harvester to which my device is applied.

In the drawings it is represented as being operated by the needle-arm B. The shaft C passes loosely through a hole in the end of the sweep D, placed beneath the platform A, so that it may serve as a pivot for the said sweep. The lower end of the shaft C is squared off, and passes through and fits into a square hole in the end of the arm E, so that the said arm may be vibrated by the movement of the said shaft C.

Upon the outer end of the arm E is formed a loop, F, through which the sweep D passes, so that the said sweep D may be moved back and forth at the proper times by the movements of the said arm E. The outer end of the sweep D is supported by and slides along a track, G, the ends of which are attached to the frame-work of the harvester, and which may be made straight or curved, according as the construction of the harvester may require.

In bearings in the outer end of the sweep D revolves a short hollow shaft, H, the upper end of which is enlarged and has a slight ring-groove, *h'*, formed around it to receive a coil of the twine. In one side of the upper end of the shaft H is formed a hook, *h*², to take hold of the twine and coil it around the said shaft H. As the shaft H completes a revolution the twine is raised by the guard I above the coil and the end of the said shaft H, so as to be wound around the neck of the holder J as the said shaft H continues to revolve.

The inner end of the guard I is pivoted to the sweep D, and has a shoulder formed upon its lower edge to enter a slot in a plate, K, attached to the said sweep D. The lower edge of the shoulder of the guard I rests and slides upon the upper side of the inner part of the track G, and is raised at the proper time by an inclined projection, *g'*, attached to the said track G.

The holder J has a head formed upon its upper end, passes down through the cavity of the shaft H, and is held up to allow the twine to

be passed around its neck by the spring L, attached at its inner end to the sweep D. The forward end of the spring L is notched to receive the neck formed upon the lower end of the holder J. The spring L passes back beneath the sweep D and across the lower side of the track G, so that it may be forced down to draw down the holder J and clamp the twine between the head of the said holder and the upper end of the shaft H by an inclined projection, g^2 , formed upon or attached to the lower side of the track G.

In the side of the upper end of the shaft H, opposite the hook h^2 , is formed a notch, h^3 , to receive a finger, M, attached to the under side of the platform A in such a position as to enter the said notch h^3 and raise the coil of twine off the upper end of the shaft H as soon as the said twine has been cut by the knife h^4 , formed upon the upper end of the shaft H. As soon as the twine is grasped by the holder J the said twine is cut off below the part grasped by the holder J by being drawn across the knife h^4 . As the coil of twine is raised over the upper end of the shaft H the part of the twine between the coil and the bundle comes in contact with and is drawn across a finger, N, attached to the lower side of the platform A, and the tension thus formed draws the knot tight.

The shaft H is revolved by a pinion, O, placed upon its middle part, and the teeth of which mesh into the teeth of a rack-bar, P, attached to the upper side of middle part of the track G.

To the lower side of the pinion O is attached, or upon it is formed, a disk or wheel, Q, which is flattened upon one side to adapt it to serve as a slide to hold the shaft H from revolving while the knot is being formed, and while the twine is being inserted. The outer edge, g^3 , of the end parts of the track G projects, as shown in Figs. 3 and 4, to rest against the flattened side of the slide Q, and thus prevent the shaft H from turning.

Upon the shaft H, above the pinion O, is placed a double ratchet-wheel, R, the teeth of its upper part pointing to the right, and the teeth of its lower part pointing to the left. Around the double ratchet-wheel R, between its two sets of teeth, is formed a ring-groove to receive the guard S, the inner part of which is attached to the sweep D. The outer end of the guard S is curved outward to receive the twine and guide it into contact with the teeth of the upper part of the ratchet-wheel R.

T is a guard attached to the track G or the platform-frame to guide the twine into such a position that it will pass between the guard S and the ratchet-wheel R.

U is a spring hook-pawl, which, as the outer

end of the sweep D approaches it, slides over the teeth of the lower part of the ratchet-wheel R. As the outer end of the sweep D moves away, the hook of the pawl U engages with the teeth of the lower part of the ratchet-wheel R and turns the said ratchet-wheel, causing the teeth of its upper part to take hold of the twine and carry it into such a position that the hook h^2 of the shaft H will grasp it to form the coil and hold the end of the twine, after being cut, while being passed around the next gavel.

To the opposite sides of the middle part of the sweep D are bolted the inner ends of two arms, V, which incline from the said sweep and have their outer ends curved upward and attached to the plate W.

The inner edge of the plate W is made straight and rests and slides upon the upper side of the edge of the platform A. The forward half of the outer edge of the plate W has a curved extension formed upon it, and in the said outer edge, at the inner end of the said extension, is formed a short slot having an enlarged inner end to receive, guide, and carry the twine, and keep its two parts together while the knot is being formed.

When my binder is used in connection with a McCormick machine, the sweep D will not be pivoted at one end, as shown in the drawings, but will move bodily on two parallel tracks, and will receive motion directly from the driving mechanism.

I do not claim the binder-arm pivotally supported on a universal joint; nor do I claim the said arm pivotally supported on a universal joint and connected directly with a driving-wheel or crank, the axis of which is in line with the axis of the joint, for I am aware that such is old; but

What I claim, and desire to secure by Letters Patent, is—

The combination of the sweep D, provided with the guard-plate W, the lever and loop E F, the shaft H, provided with the groove, hook, notch, and knife $h^1 h^2 h^3 h^4$, the pinion and slide O Q, the track G, provided with the rack P, the inclined projections $g^1 g^2$, and the edge projections g^3 , the double ratchet-wheel R, the guards I K S, the holder and spring J L, the guard T, the hook-pawl U, the stop-finger N, and the lifting-finger M, with each other and with the rock-shaft C and the platform A of a harvester, substantially as herein shown and described.

JOSEPH HENDERSON HAUGHAWOUT.

Witnesses:

V. A. STUART,
T. M. WRIGHT.