

(No Model.)

2 Sheets—Sheet 1.

F. SCHOLES.  
GRADING MACHINE.

No. 438,863.

Patented Oct. 21, 1890.

Fig. 6.

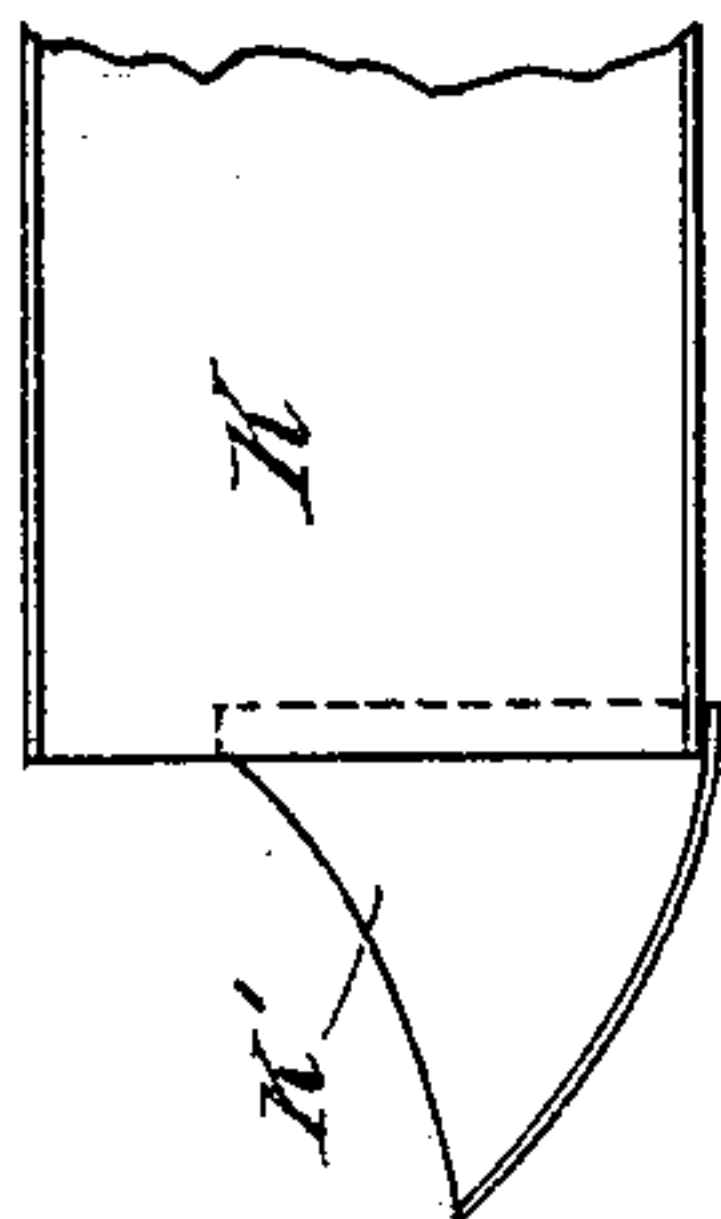
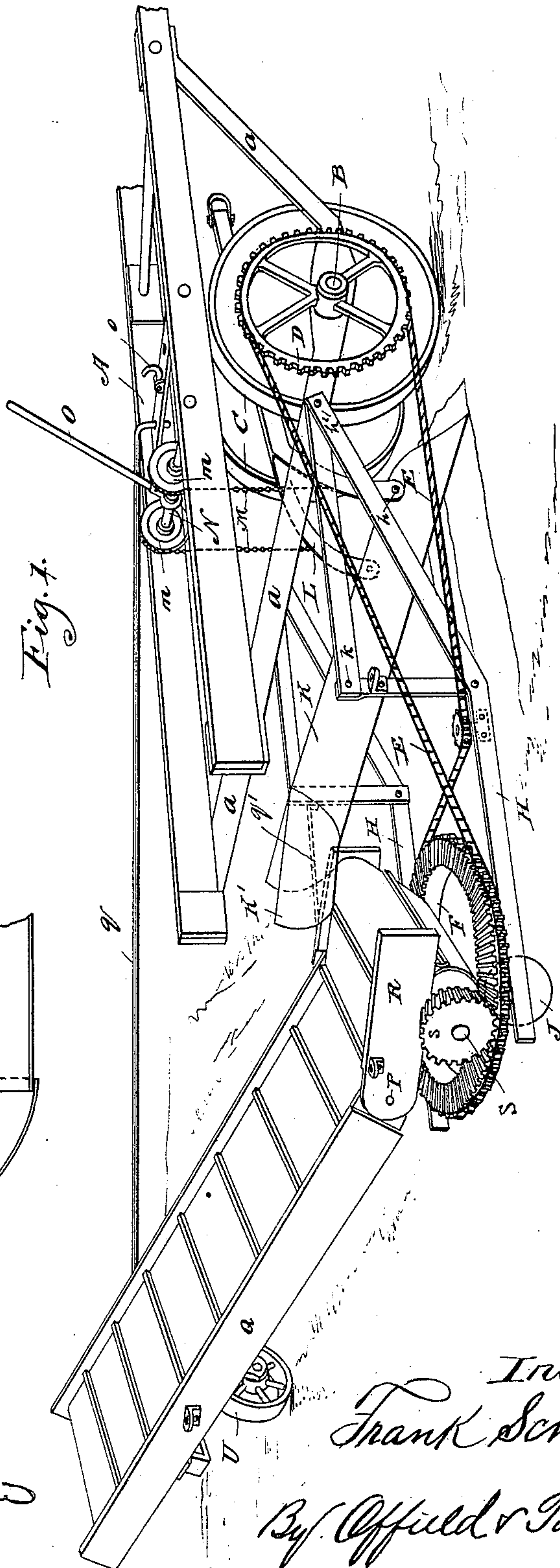


Fig. 7.



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2 Sheets—Sheet 2.

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Fig. 4.

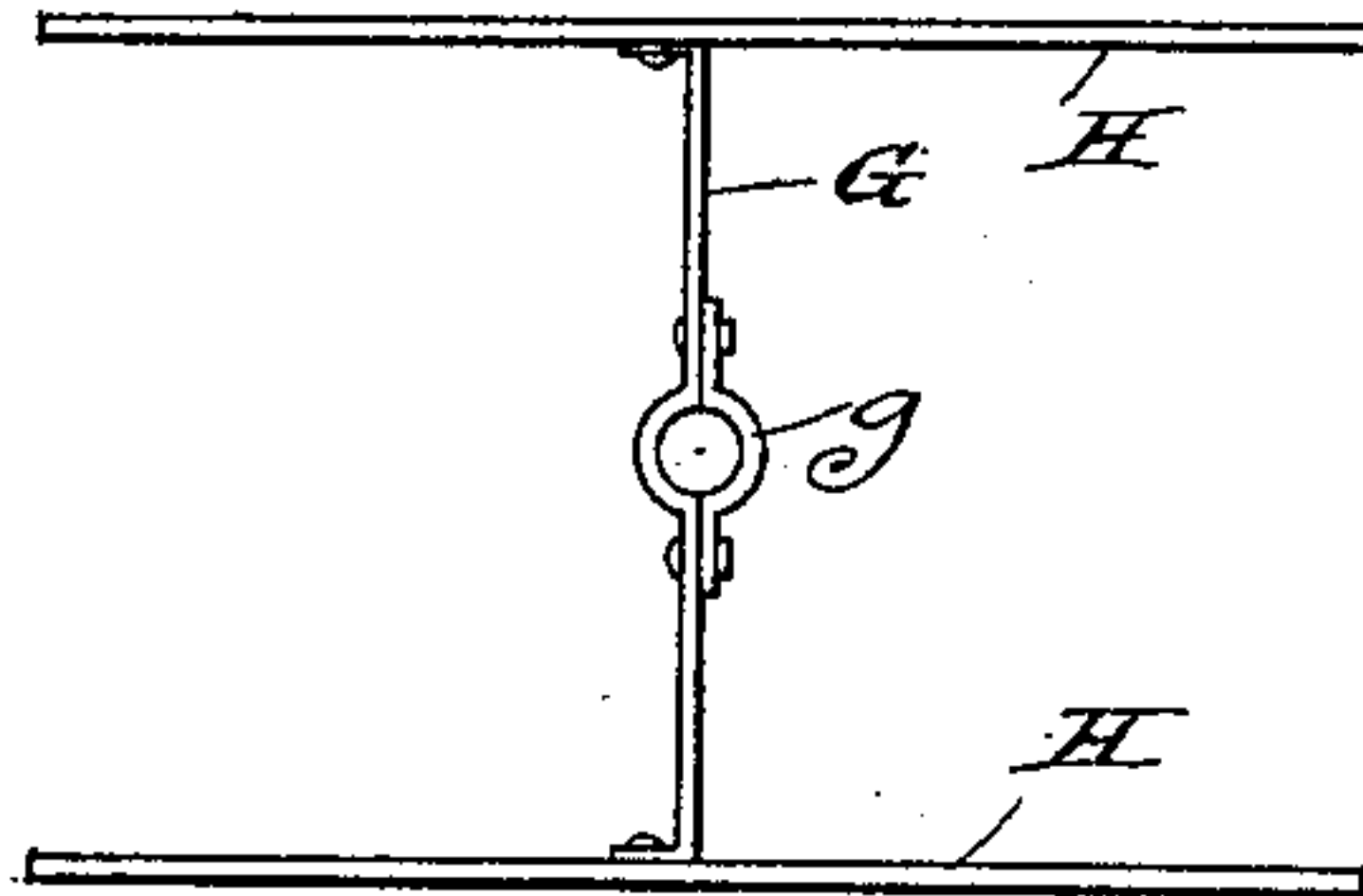


Fig. 2.

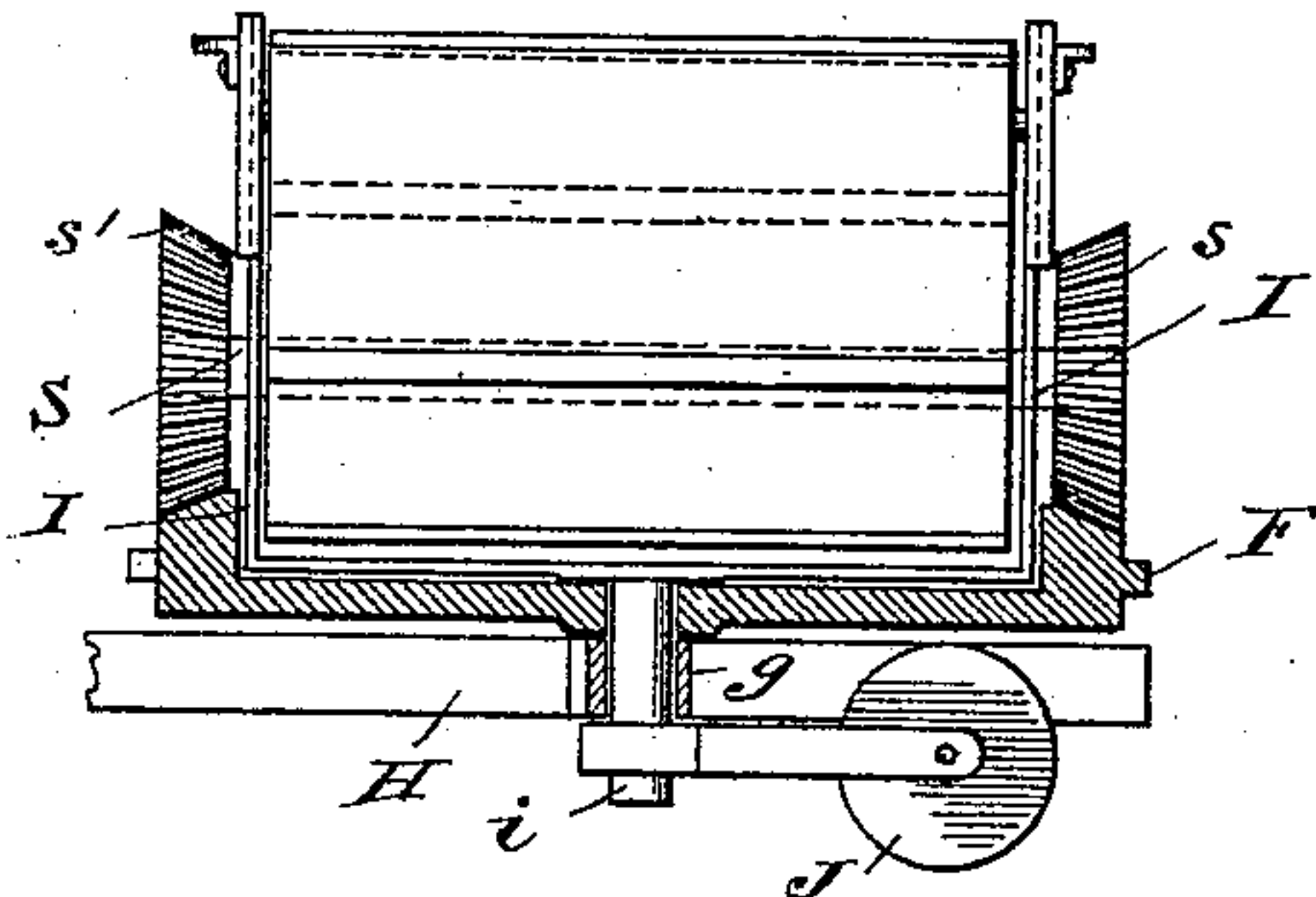


Fig. 3.

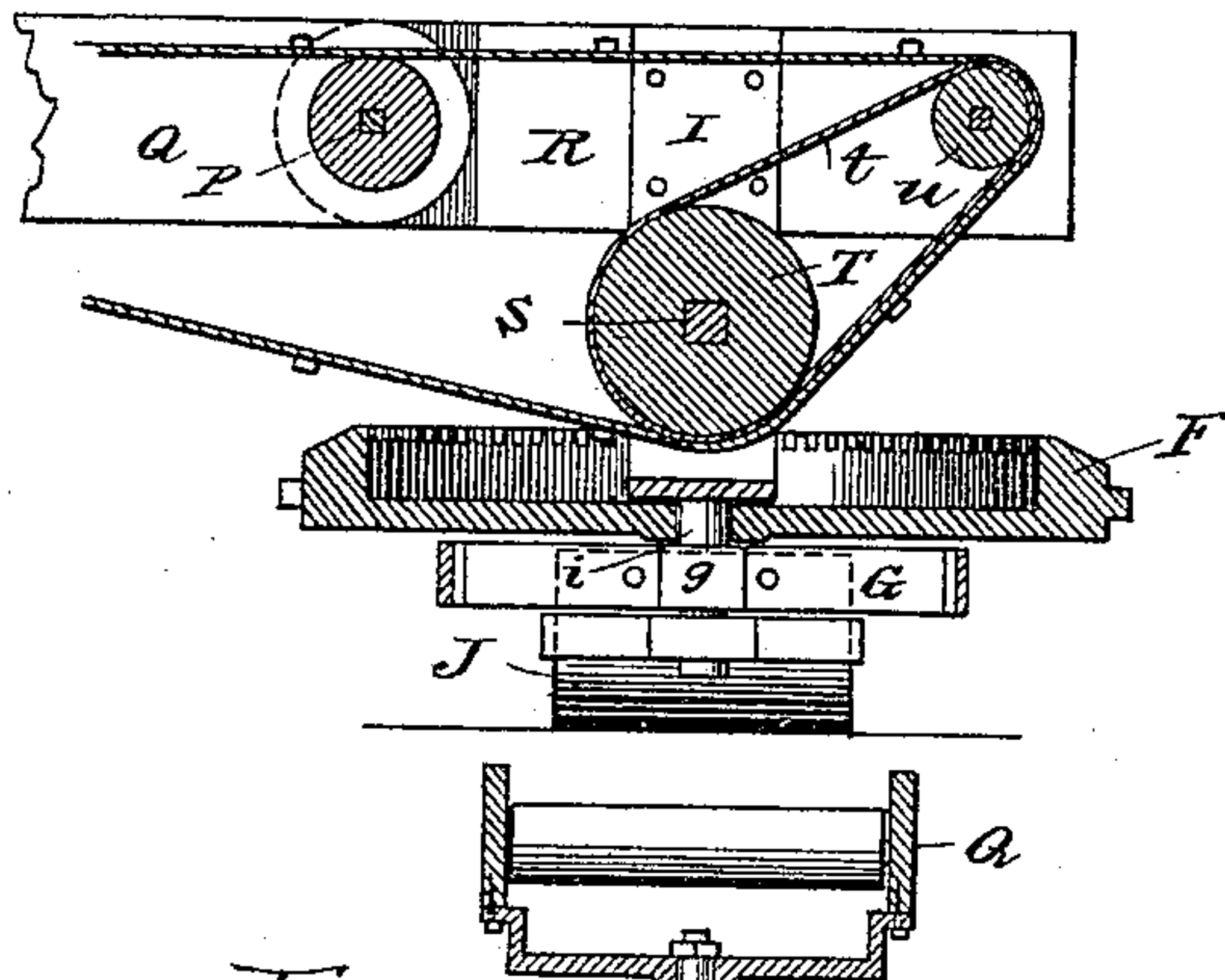
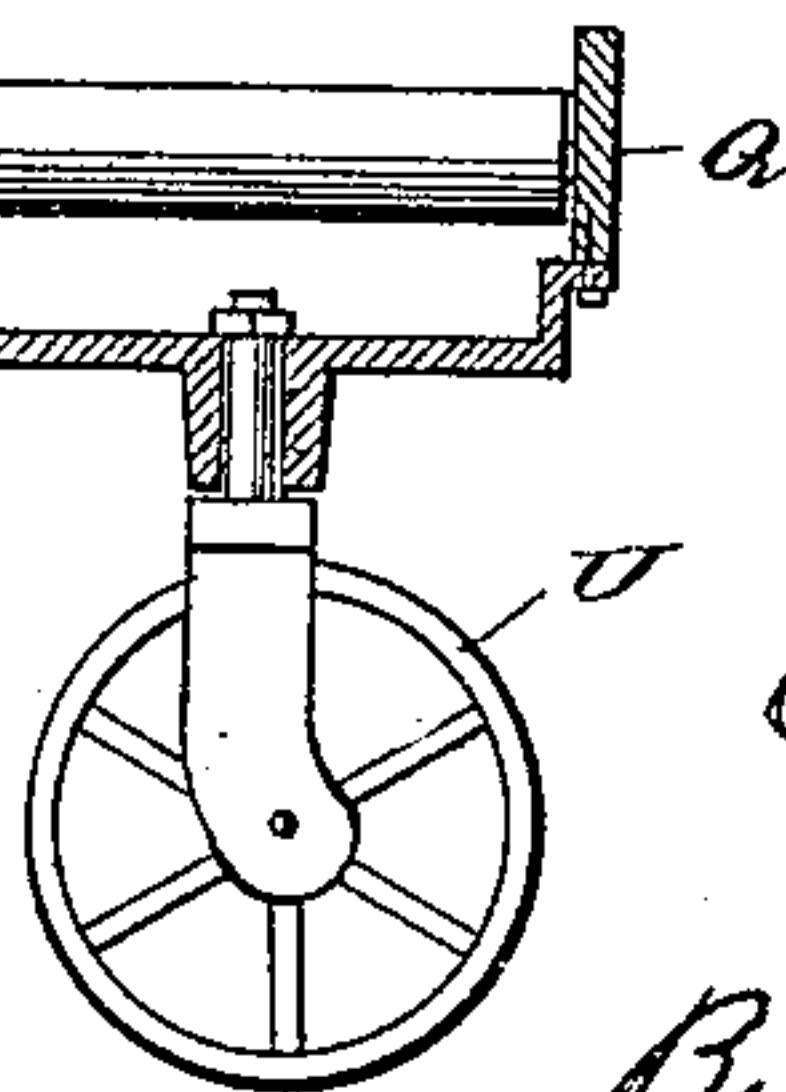


Fig. 5.



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# UNITED STATES PATENT OFFICE.

FRANK SCHOLES, OF HUNTINGTON, INDIANA.

## GRADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,863, dated October 21, 1890.

Application filed July 5, 1889. Serial No. 316,621. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK SCHOLES, a citizen of the United States, residing at Huntington, in the county of Huntington and State of Indiana, have invented certain new and useful Improvements in Grading-Machines, of which the following is a specification.

My invention is embodied in a machine for excavating and banking the earth in the operation of grading, and especially relates to the lateral adjustment of the carrier, whereby the discharge therefrom may take place upon either side of the line of excavation.

In the accompanying drawings, Figure 1 is a perspective view. Fig. 2 is an end elevation of the carrier, showing the combined sprocket and beveled gear-wheel with its supporting-frame in vertical section. Fig. 3 is a central longitudinal vertical section of a portion of the carrier and its operative parts. Fig. 4 is a detail in plan of a portion of the supporting-frame of the carrier, and Figs. 5 and 6 are sectional details.

Depending from the main structure A are hangers *a*, in which the shaft B is journaled. Shaft B carries wheels C and sprocket-wheel D. While in locomotion the chain E transmits a rotary movement from shaft B to a combination sprocket and beveled gear wheel F, which is pivotally supported upon a tie-bar G of a supplemental structure H, said structure being pivotally connected at *h'* to the hangers *a*. Yoke I is rigidly secured to the sides of the lower portion of the carrier and has a stud *i*, which passes through the hub of gear and sprocket wheel F and the eye of the tie-bar G, carrying beneath the tie-bar G a caster-roller J, which supports the weight of the lower end of the carrier and rear portion of frame H. Scoop K is pivotally secured at *k* to frame H, and has a bail L, which terminates in a tongue to which the forward horses are hitched, the machine being designed for about six horse-power. Chains M have one of their ends secured to sheaves *m* upon rock-shaft N and their opposite ends secured to bail L. Handle O is adapted to rock-shaft N and may be a ratchet-lever. It is apparent that the scoop may be raised or lowered, as desired, to regulate the depth of cut. In transportation the handle O is secured in a horizontal position by means

of the hook *o*, causing the lower end of the scoop to clear the ground. Scoop K has an extension-spout K' to insure the deposit of earth excavated centrally upon the carrier.

The carrier is made in two sections hinged at P, the upper portion Q being secured against lateral displacement by retaining-rod *q*, having bent ends, one end of which is inserted in an eye upon the side of the carrier and the other end secured in an aperture in a tie-bar of the main frame. The lower section R is provided with similar means for securing it in its position. It is apparent that to change the retaining-rods from one side of the machine to the other will make a corresponding change in the position of the discharge end of the carrier. An endless apron brought into frictional contact with suitable rollers forms the carrier. Shaft S is journaled in yoke I and carries upon its ends beveled pinions *s s'*, which mesh with the combined sprocket and beveled gear F. A roller T upon shaft S carries a short belt *t*, which passes around roller *n*. The speed of the carrier is increased or diminished by changing roller T for one of greater or less diameter. The apron of the carrier passes over roller *n* and under roller T, coming in frictional contact with belt *t*. Pinion *s* is keyed to shaft S, and pinion *s'* being loose upon shaft S acts as a balance for the carrier. The weight of the upper portion of the carrier Q is supported on a caster-wheel U.

In operation the scoop is lowered to make the desired cut, and as the machine advances sprocket-chain E transmits a rotary movement from shaft B to gear F, which in turn causes the pinions *s s'* to rotate. At the same time, through shaft S, roller T, and belt *t*, roller *n* is brought into rotation, carrying the apron with it, and as the earth excavated is forced up the scoop it will fall upon the moving apron and finally be deposited from the end of the carrier.

By pivotally connecting a supplemental frame to the main frame it is apparent that the two may adjust themselves to inequalities of the ground, and by pivotally connecting the carrier to the supplemental frame the earth may be deposited on either side of the cut at will. The carrier being made in two sections, the elevator portion thereof may be



adjusted, and the whole frame can thus be adapted to inequalities of the surfaces and the exigencies of the work.

I claim—

5 1. In a grading-machine, the combination, with a main frame, of a supplemental frame connected thereto by horizontal pivots, a carrier mounted upon the supplemental frame and connected thereto by a vertical pivot, and  
10 gearing driven by a belt from the main frame to impart motion to the elevator-belt of the carrier, substantially as described.

2. In a grading-machine, the combination, with a main frame connected thereto by horizontal pivots, of a carrier mounted upon a  
15 supplemental frame and connected thereto by a vertical pivot, and a combined sprocket and gear wheel adapted to be driven by a belt from the main frame and to impart motion  
20 to the elevator-belt of the carrier through interposed gearing, substantially as described.

3. In a grading-machine, the combination, with the main frame, of a supplemental frame pivotally connected therewith and supported

upon ground-wheels, a carrier pivotally 25 mounted upon the supplemental frame and adapted to be turned upon its pivot, whereby to deliver the excavated earth upon one side or the other of the excavation, and bracing-  
30 rods adapted to hold the carrier in proper position with relation to the main frame, substantially as described.

4. In a grading-machine, a main frame wheel-supported, a supplemental structure, also wheel-supported and pivotally connected 35 to the main frame to move in the rear thereof, an excavating-scoop supported by chains or similar flexible connections from the main frame, and a bail pivotally connected to the  
40 forward end of the scoop, said bail terminating in a draft-tongue and said scoop having a rearward extension adapted to deliver the dirt to an elevator mounted upon the supplemental frame, substantially as described.

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