

(No Model.)

E. WILHELM.  
Starch Separator.

**No. 243,024.**

**Patented June 14, 1881.**

Fig. 1.

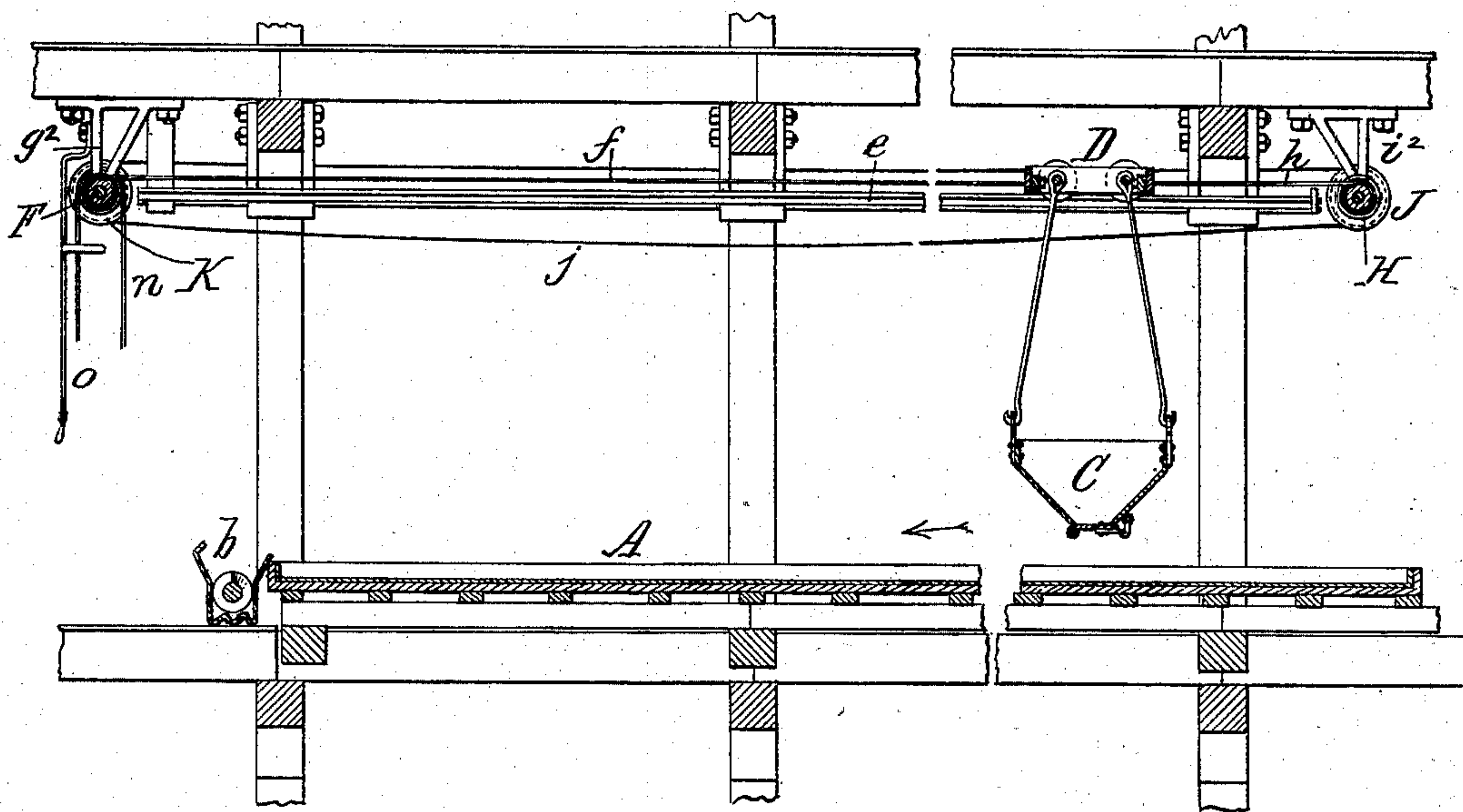


Fig. 2.

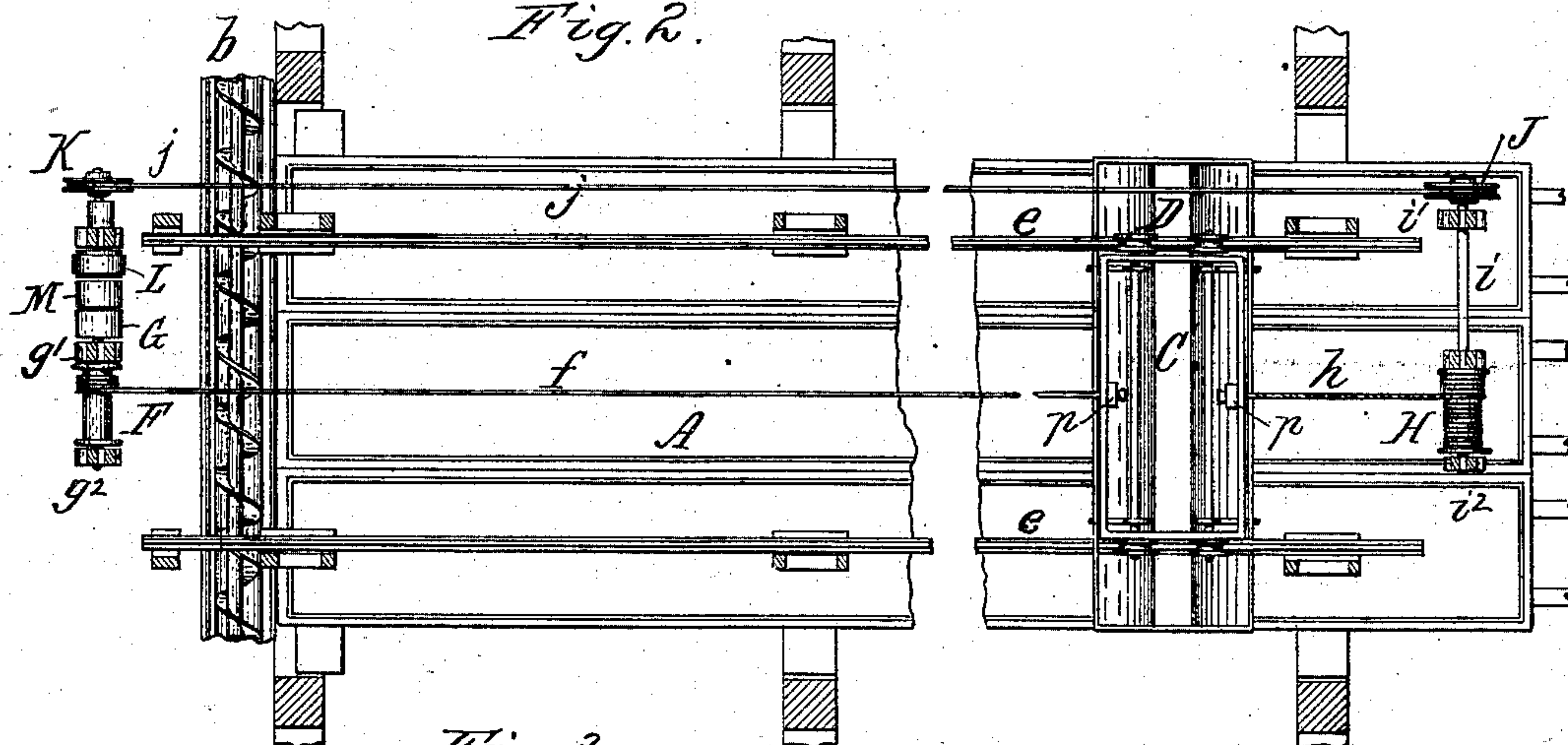
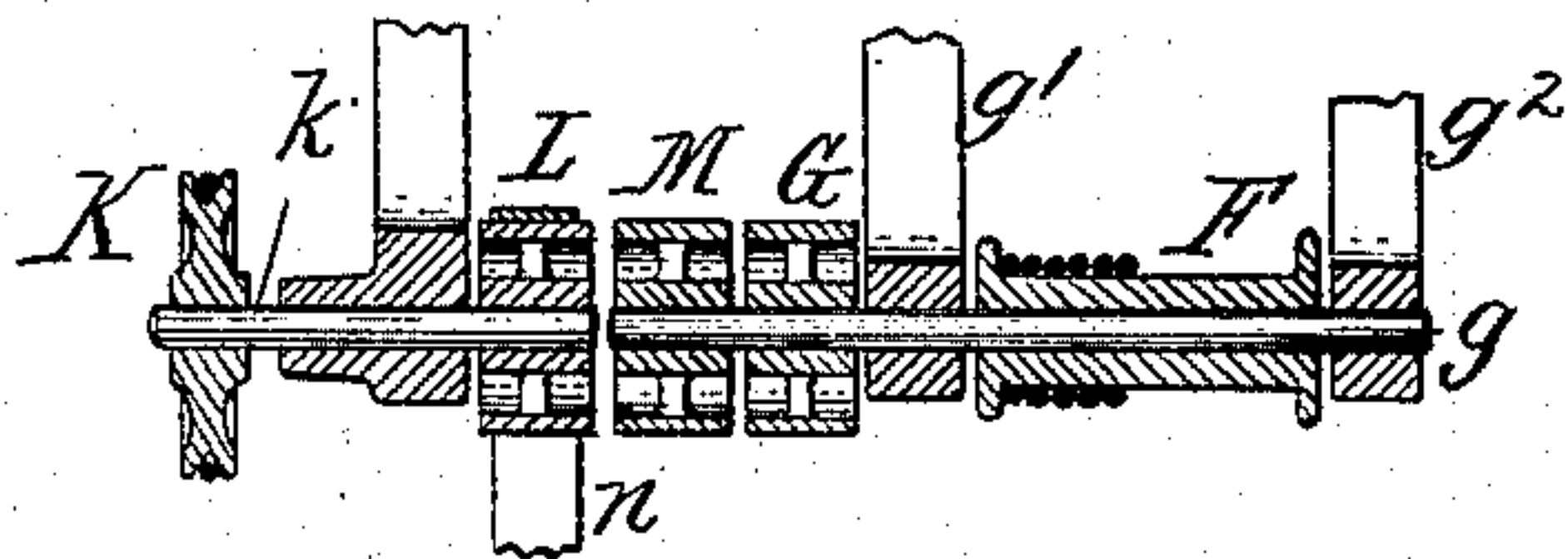


Fig. 3.



Chas. Buchheit.  
Edw. J. Brady. } Witnesses.

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# UNITED STATES PATENT OFFICE.

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## STARCH-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 243,024, dated June 14, 1881.

Application filed February 15, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD WILHELM, of the city of Buffalo, in the county of Erie, in the State of New York, have invented new and useful Improvements in Starch-Separators, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of starch-separators which consist of slightly-inclined flat trays or tables, over which the liquid holding the starch in suspension is caused to run and upon which the starch is deposited, while the refuse liquid runs off.

The object of this invention is to expedite the work of removing the deposited starch from the tables to the tubs or vats, in which the starch is further treated with reference to the ultimate product desired, which may be laundry or culinary starch, grape-sugar or glucose, beer, spirits, or the like.

My invention consists, to that end, in providing each starch-table or set of starch-tables with a movable receptacle capable of being moved lengthwise over the table or tables and mechanism whereby the receptacle is moved back and forth over the table or tables at desire; also, of the particular construction of the mechanism employed for moving the starch-receptacle, as will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a set of starch-tables provided with my improvements. Fig. 2 is a top-plan view thereof. Fig. 3 is a sectional elevation of the actuating mechanism at the head of the starch-tables.

Like letters of reference refer to similar parts in the several figures.

A represents one or more starch-tables of ordinary and well-known construction, three tables being preferably arranged side by side in each set.

b represents a conveyer-trough arranged preferably at the heads of the different starch-tables or sets of starch-tables, and leading to a vat or tank in which the starch is to be treated after its removal from the tables. The starch which is deposited upon the tables, near their upper ends, can be shoveled directly into the conveyer-trough or other discharge aperture

or spout which may be provided for its reception.

C represents a movable receptacle suspended above the starch-tables at a convenient height to enable the workmen to shovel the starch from the tables into the receptacle. The receptacle C preferably extends across all the tables in one set, and is suspended from a wheeled carriage, D, which runs on rails *e*, secured to the timbers overhead, or the posts, as may be most convenient.

*f* is a cable or rope running from the carriage D of the traveling receptacle forward to a drum, F, which is mounted on a shaft, *g*, provided with a pulley, G. The shaft *g* is supported in bearings *g'* *g''*.

*h* is a rope or cable running from the carriage D of the traveling receptacle rearward over a drum, H, which is mounted on a shaft, *i*, supported in bearings *i'* *i''*. The shaft *i* is provided with a grooved pulley, J, which is connected by an endless wire rope or belt, *j*, with a pulley, K, mounted on a shaft, *k*, which is arranged in line with the shaft *g*.

L is a pulley of the same size as the pulley G and mounted on the shaft *k*, near the pulley G.

M is a loose pulley arranged between the pulleys G and L, and turning loosely on a projecting portion of either of the shafts *g* or *k*.

*n* represents an endless belt whereby power is transmitted to the pulleys G L M from a convenient shaft.

The ropes *f* and *h* are wound upon their respective drums in the same direction, one rope passing under and one over its respective drum, so that a rotary movement of the drums in the same direction will cause the receptacle C to travel in opposite directions.

When the belt *n* is placed upon the loose pulley M the shafts *g* *k* and the machinery connected therewith remain at rest. Upon shifting the belt *n* to the pulley G, mounted on the shaft *g*, the drum F is rotated in a direction in which the receptacle C is drawn by the rope *f* toward the trough *b*, as indicated by the arrow in Fig. 1, the rope *h* being unwound from the drum H at the same time. Upon shifting the belt *n* to the pulley L, mounted on the shaft *k*, the drum H is rotated in a direction in which



the receptacle C is drawn toward the drum H, the rope *f* being unwound at the same time. In this manner the movement of the receptacle C back and forth over the tables is readily controlled by the shifting-lever *o*, to draw the receptacle when filled over the conveyer-trough *b*, or other receptacle or aperture into which the starch is required to be discharged, and returned, when emptied, to the opposite end of the table to be again filled. The starch which has been deposited upon the tables is shoveled into the receptacle C, when the latter is quickly and with great convenience drawn by the herein-described mechanism over the trough *b* or other receptacle, into which the contents of the receptacle C are discharged by releasing the hinged bottom of the receptacle, and the empty receptacle is as quickly returned to the workmen who are removing the starch from the tables. The time required for emptying the tables and getting the same ready for another charge and the manual labor required for this operation are, by this mechanism, greatly reduced.

The ropes *f* and *h* may be connected with the carriage D of the traveling receptacle by springs *p*, to prevent sudden shocks when the receptacle is first set in motion.

If preferred, the shafts *i* and *k* may be connected by a shaft and gear-wheels in place of the endless cable and pulleys.

I claim as my invention—

1. The combination, with one or more starch-tables, A, of rails *e*, arranged lengthwise over the starch-tables, a starch-receptacle, C, suspended from a carriage, D, running on the rails *e*, and mechanism whereby the carriage D can be moved back and forth over the table, substantially as set forth.

2. In apparatus for manufacturing starch, a receptacle, C, connected with a carriage, D, running on rails *e*, ropes *f* and *h*, secured to the carriage D and running thence to drums F and H, and mechanism whereby the drums are alternately rotated, and whereby the receptacle is moved back and forth at desire.

3. In apparatus for manufacturing starch, a starch-receptacle, C, made movable on rails *e*, ropes *f* and *h*, connecting the receptacle with drums F and H, arranged at opposite ends of the starch-tables, an endless belt or rope, *j*, whereby motion is imparted to the shaft of the drum H from a shaft, *k*, and tight and loose pulleys G L M, whereby motion is alternately imparted to the drums F and H, substantially as set forth.

EDWARD WILHELM.

Witnesses:

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