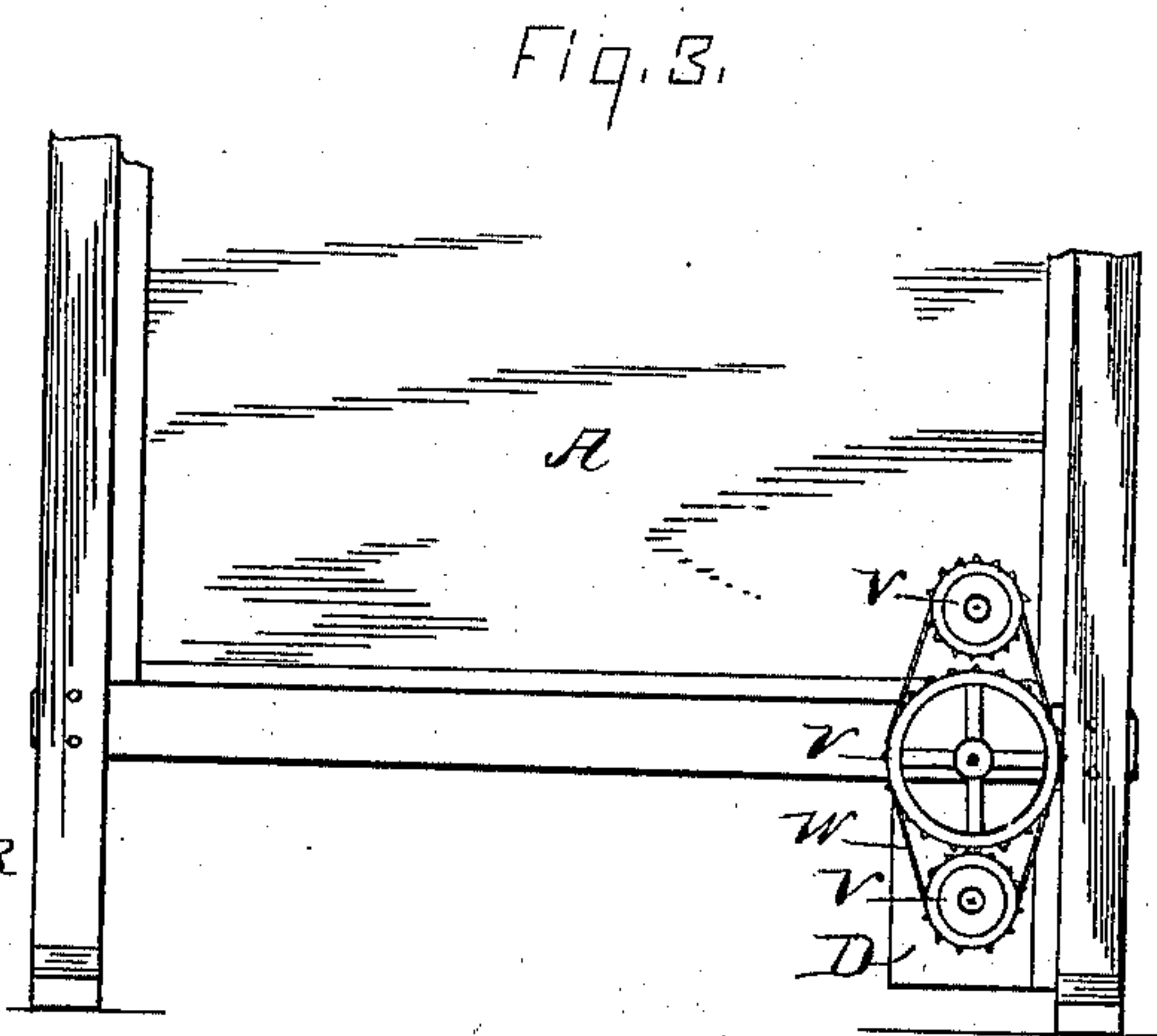
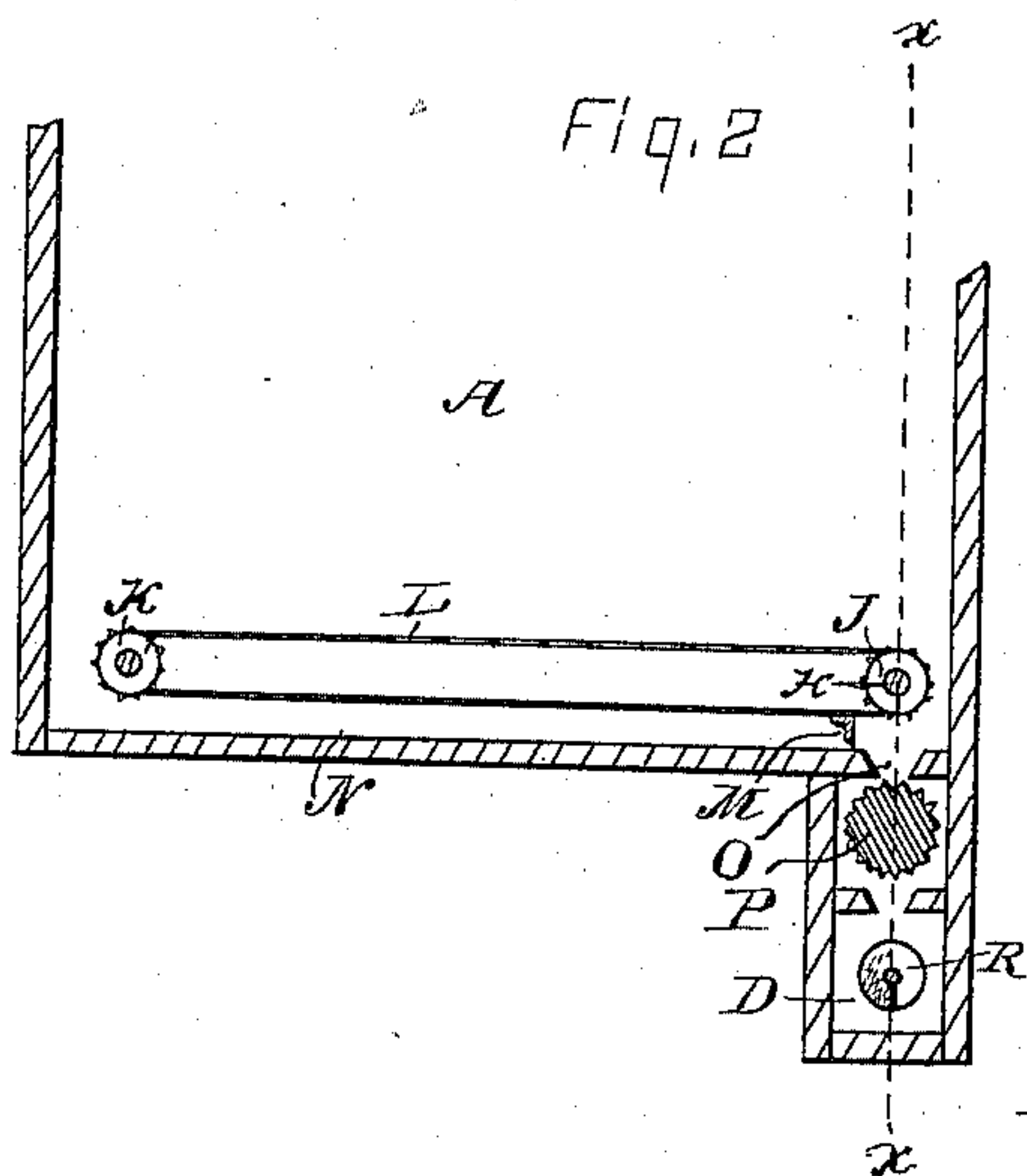
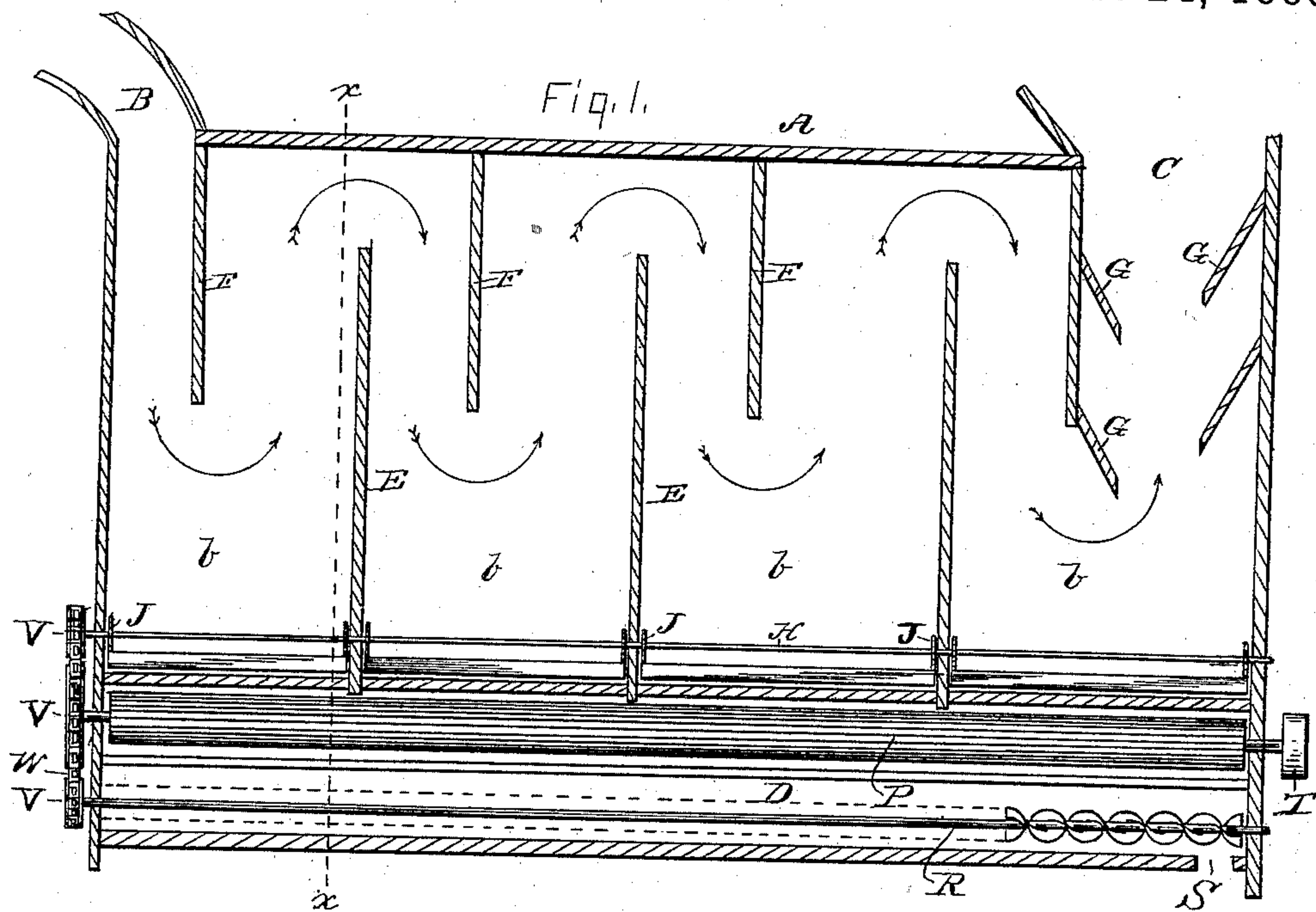


(No Model.)

J. M. SPRINKEL.
DUST COLLECTOR.

No. 313,028.

Patented Feb. 24, 1885.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH M. SPRINKEL, OF STERLING, ILLINOIS.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 313,023, dated February 24, 1885.

Application filed October 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. SPRINKEL, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Dust Collectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention has reference to that class of mill machinery known as "dust-collectors," and is designed to be used, principally, in connection with any one of the several middlings-purifiers now in use to collect the dust or fine particles of flour generated by the purifiers, separate it from the intermixed air, thereby avoiding the discharge of a dangerous explosive compound into the mill, and save such dust for feed or other useful purposes.

In the drawings, Figure 1 is a longitudinal sectional view of a machine embodying my invention. Fig. 2 is a vertical section in the line *xx* of Fig. 1. Fig. 3 is an end elevation of the lower portion of my machine.

My machine is adapted to be attached to middlings-purifiers and receive therefrom the intermixed middlings-dust and air, and is so internally constructed that such mixture, in its progress through my machine, is gradually separated, so that the dust is precipitated to the bottom of the machine, and from thence conducted into deposits therefor, and the air, cleared of such dust, permitted to pass from an opening on the top of the machine near its rear end. The precipitation of the dust is effected by causing the mixture to pass through a series of chambers successively increasing in capacity, whereby the air is expanded slightly and its velocity decreased, and by rendering the passage of such mixture through the machine tortuous by means of interposed deflecting-walls, so that the velocity of the mixture is yet further lessened, and the dust, no longer being carried by the force of the purifier-discharge, is free to drop to the bottom of the machine by its own gravity.

A is a rectangular box entirely closed, with the exception of the inlet B, outlet C, and a narrow opening, O, hereinafter named, in its lower surface.

D is a secondary closed chamber, having communication, through the opening before referred to, with the interior of the box A, and containing within it mechanism for receiving the collected dust from the box A, and discharging the same into any suitable receptacle. The interior of the box A is furnished with partitions E, extending laterally across such box, and vertically about three-fourths the height of the interior of such box. Like partitions F, projected from the ceiling of the box A and extending about half-way to the floor, are interposed between the partitions E. The distances between the partitions E and F are successively increased from the inlet B to the outlet C, whereby greater room is afforded for the air, which, in conjunction with the interposed and deflecting partitions E and F, has the effect of reducing the velocity of the dust-laden air, and thus permits the separation of the dust therefrom, which latter by its own gravity is precipitated in a fine and almost impalpable powder over the floor of the box A. Boards G are attached obliquely downward to the walls of the exit C, which have the effect of still further retarding the passage of the air and effecting the separation therefrom of any remaining dust. The dust-laden air enters the box A through the inlet B, and passes in the direction of the arrows around the projecting ends of the partitions E and F, being deflected and consequently retarded thereby, and, finally, the air, separated in its passage through the box A from the dust, as before mentioned, passes out of such box through the outlet C.

H is a small rotating shaft extending through the box A, and journaled therein near the bottom and front side thereof.

On the shaft H, in each subdivision *b* of the box A, are rigidly seated a pair of sprocket-wheels, J. Corresponding sprocket-wheels, K, are suitably placed in the rear of the box A, on the same plane horizontally with the wheels J, and in line respectively with the latter wheels. The sprocket-wheels K may be seated on short spindles attached to the walls

of the chamber in which they are located, or upon a fixed rod extending through the box A, parallel with the shaft H. Sprocket-chains L connect each wheel J with the wheel K in line therewith, and are actuated from the shaft H in such direction that the lower portions of such chains L have their movement toward the front of the machine. A scraper, M, is attached transversely to each pair of chains L, which extends across the apartment *b*, and is in such relation to the floor N of the box A that the rotation of the chains L causes such scraper to scrape the dust deposited on the floor of such apartment *b* to the front end of the latter, where a narrow opening, O, in the floor of the box A, in line with such scrapers, permits such collected dust to fall through the floor of the box A into the chamber D, upon the upper side of the horizontal roller P, journaled in the chamber D, directly under and in line with the opening O, and so close as to practically seal the latter and prevent a current of air. The roller P is provided with longitudinal flutes in its periphery, which receive the dust, and in the rotation of such roller the dust is discharged upon the screw-shaft R, also journaled in the chamber D under and in line with the roller P. The screw-shaft R is provided with the spiral lateral flanges, the lower edges of which nearly touch the floor of the chamber D. By the rotation of the shaft R the dust is transferred to the outer end of the chamber D, and there falls through the exit S in the floor thereof into any suitable receptacle or conduit. The chamber P is entirely closed except the opening O and exit S. This closed condition is made necessary from the light and loose character of such dust. The roller P is rotated by means of power applied to the pulley F on its outer end, and like rotation is given to the shafts H and R by sprocket-wheels V V, fixed on the opposite ends of such roller

and the adjacent ends of each shaft, respectively, and a sprocket-chain, W, inclosing such wheels V; or such pulleys and shafts may be rotated in any other suitable manner.

In operation, the dust, precipitated upon the floor of the box A, is by the scrapers M drawn to and discharged downwardly through the opening O upon the roller P, and by the latter cast upon the screw-shaft R and the floor of the chamber D, when, by the auger-movement of the shaft R such dust is ejected through the exit S.

In my machine I dispense with sieves, screens, and the action of fans to separate the dust, all of which last-named appliances have been found objectionable and unsatisfactory.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the box A, provided with the inlet B, outlet C, opening O, and partitions E and F, placed so as to progressively increase the intervals between such partitions, the chains L, means for propelling such chains, the scrapers M, and the roller P, having a longitudinally-fluted periphery, substantially as described.

2. The combination of the box A, having partitions E and F, chains L, means for propelling such chains, scrapers M, roller P, having a fluted periphery, and shaft R, substantially as described.

3. The combination of the box A, having partitions E and F, the chains L, means for propelling such chains, and the scrapers M, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH M. SPRINKEL.

Witnesses:

WALTER N. HASKELL,
VIRGIL S. FERGUSON.