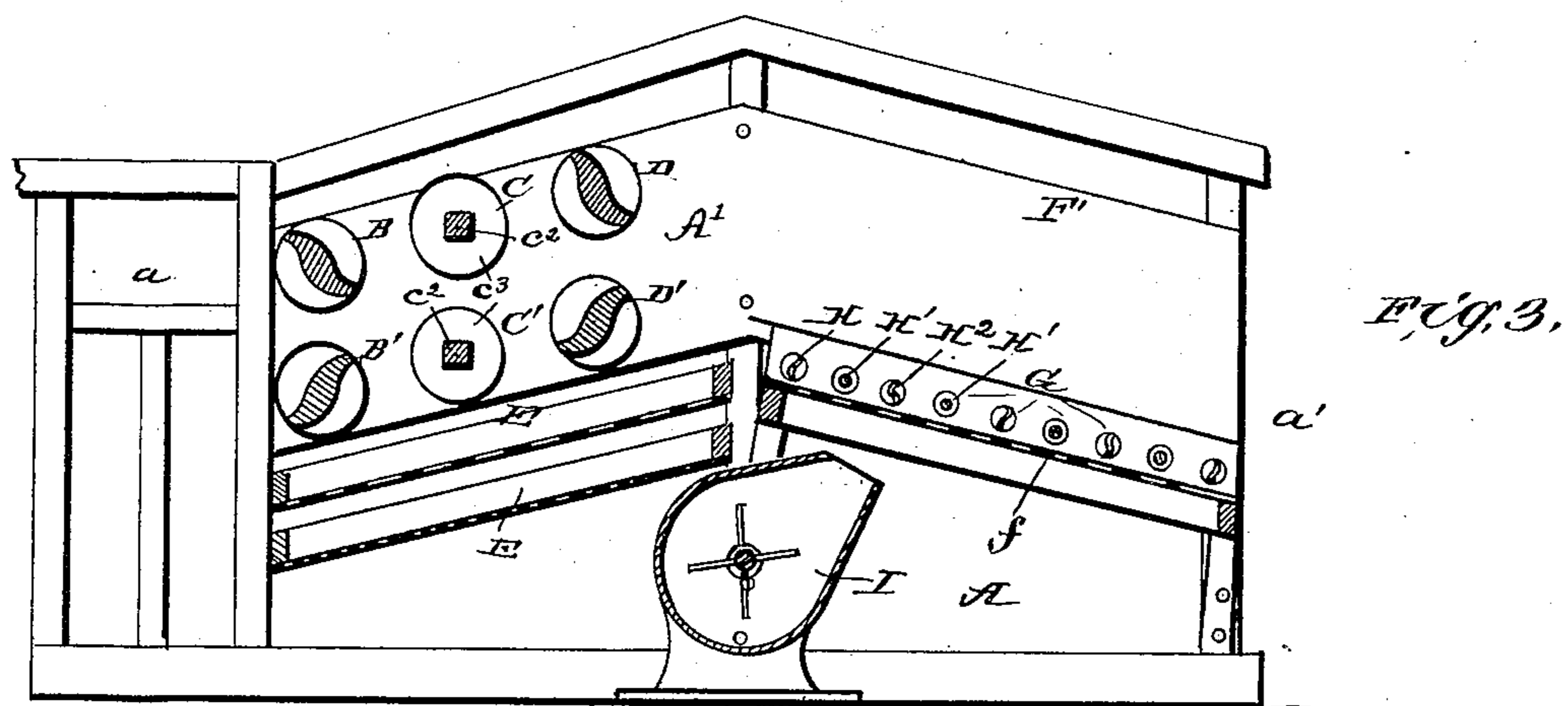
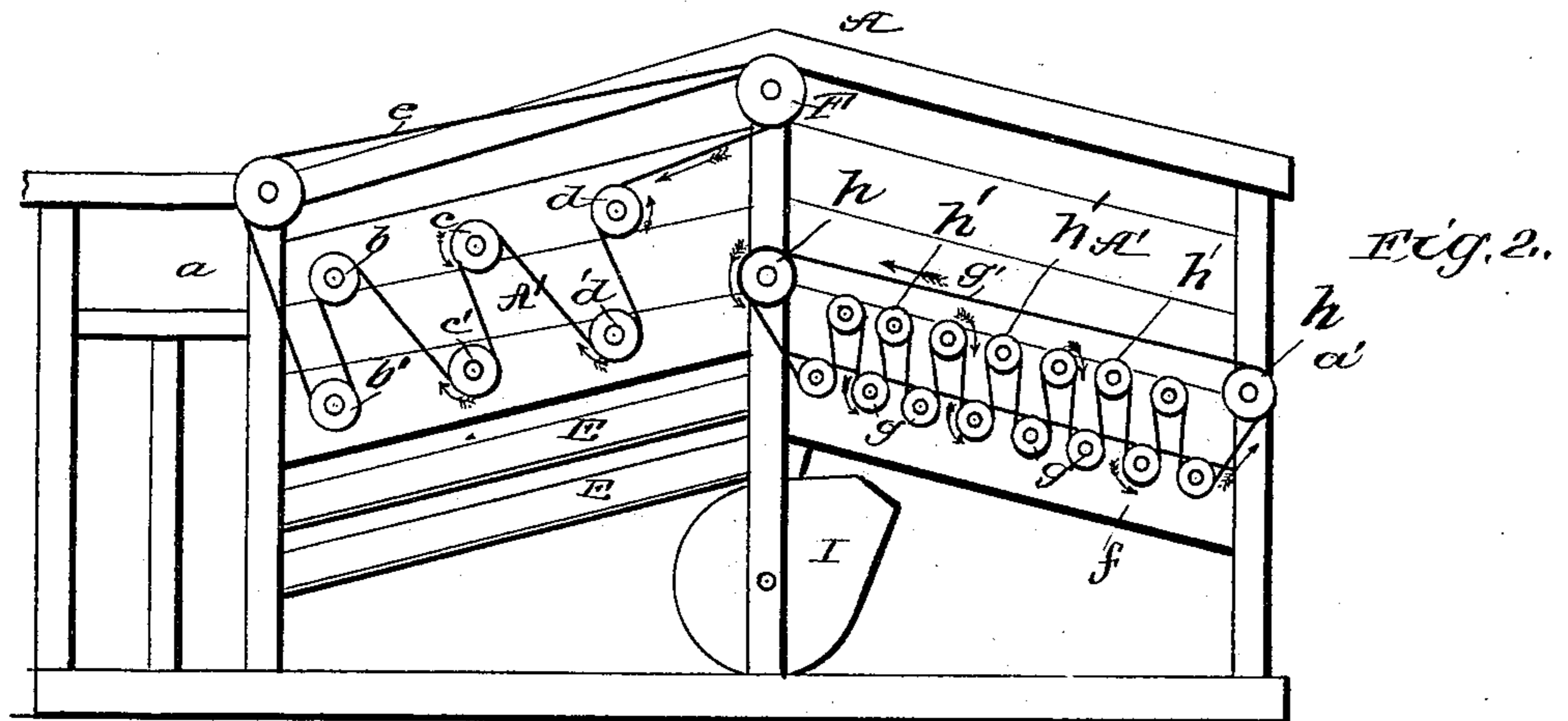
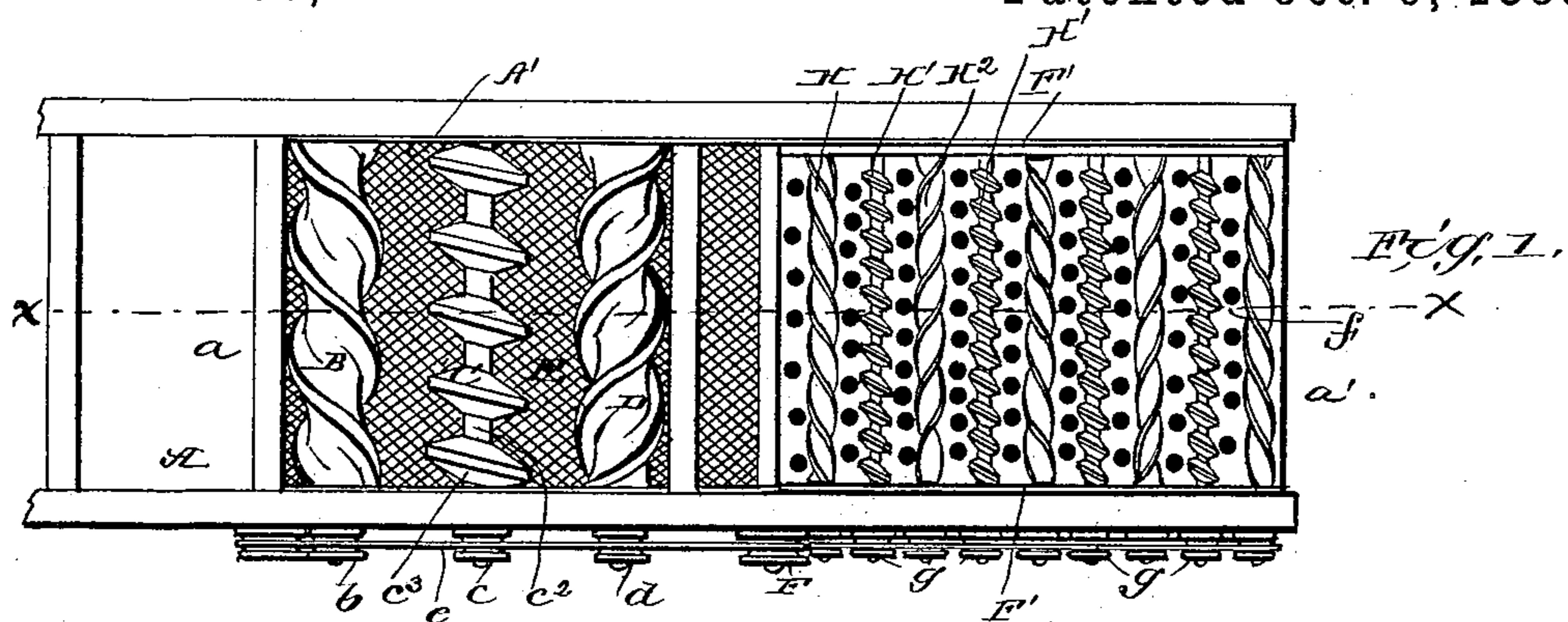


(No Model.)

W. L. GILSON.
GRAIN SEPARATOR.

No. 390,772.

Patented Oct. 9, 1888.



WITNESSES
Jas. A. Ryan
C. E. Doyle

INVENTOR,
W. L. Gilson
by C. A. Shoups
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM LORENZO GILSON, OF McMinnville, OREGON.

GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 390,772, dated October 9, 1888.

Application filed May 20, 1887. Serial No. 238,896. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LORENZO GILSON, a citizen of the United States, residing at McMinnville, in the county of Yamhill and State of Oregon, have invented a new and useful Improvement in Grain-Separators, of which the following is a specification.

The invention relates to improvements in machines to separate straw and other foreign substances from grain and other kinds of seed; and it consists in the construction and novel arrangement of parts hereinafter described, illustrated in the drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is a plan view of the machine. Fig. 2 is a view of the side of the same on which the operating-pulleys are situated. Fig. 3 is a vertical section on the line *x x* of Fig. 1.

Referring to the drawings, A designates the frame of the machine, of which *a* is the receiving end, and *a'* the discharge end.

A' A' are inclined boards secured to the sides of the machine and having journal-bearings made in them for the sets of feed-rollers B B' C C' D D'. The said rollers are arranged in three sets, the outer or lowest of which is composed of the upper and lower rollers, B B', respectively, the intermediate of the rollers, C C', and the third the innermost or highest of the rollers, D D'. The journals of the respective shafts of the said rollers extend outside of their bearings on one side, and are provided with the pulleys *b b'*, *c c'*, and *d d'* on the ends thus extended.

F is the pulley, the shaft of which has a bearing secured to the side of the main frame, and *e* is a belt from a pulley on any suitable source of power, which belt passes over the pulley F, thence over the pulley *d*, thence downward and under the pulley *d'*, thence upward and over the pulley *c*, thence downward and under the pulley *c'*, thence upward and over the pulley *b*, and thence downward and under the pulley *b'*, whence it passes to and around the pulley on the motor.

The rollers B B' are formed from sections of similar screws, which, by the described direction of the belt *e*, are caused to rotate in opposite directions to draw straw and such material between them into the machine, the upper

roller, B, turning downward on its outward side and the roller B' turning upward. This motion causes the threads of the said screws to apparently move longitudinally in opposite directions, so that the straw, besides being drawn inward, is moved violently and rapidly from side to side by the adjacent edges of the two threads when closest together.

The rollers C C' are each composed of a square shaft, *c²*, having trunnions on the ends to operate in the bearings in the frame, and *c³* are ovoid disks made or secured on the said shafts at equal distances apart across the entire width of the machine, the disks all having an equal inclination in the same direction to the axes of their respective shafts.

The rollers D D' are formed from sections of similar screws, with their threads running in opposite directions to those of the screws forming the rollers B B'. The upper rollers in each of the sets turn downward at their outer sides and the corresponding lower rollers turn upward, so that the material from the thrasher is continuously drawn into the machine by the three sets of rollers.

As the threads of the rollers D D' run in opposite directions to those of the rollers B B', the lateral vibration of the straw is reversed when reaching them.

The rollers C C', provided with the disks *c³*, give the straw a very strong lateral vibration when passing from the first to the third set or pair of rollers, and also retard its progress to a certain degree, thus giving the screw-rollers more time to act, so that they produce a more thorough separation of the grain.

The three pairs of rollers are preferably made of steel, and, if desired, all may be made similar to the second pair—that is, with the disks set at angles on the shafts; but as the motion produced thereby would not be so perfect in all respects as that produced by the screw-rollers the latter are preferred.

The straw in passing through the described sets of rollers has a large amount of grain separated from it, which grain falls on the screens E E below the rollers, and is separated from the chaff and similar refuse mixed with it in the ordinary manner.

The delivery part of the main frame has secured to its sides the plates F' F', inclined down-

ward from within and having secured between them the similarly-inclined screen or screens *f*, above which are journaled the inclined set of rollers *G* parallel to and immediately above the screen *f*. The shafts of the said rollers have on their extended ends the pulleys *g g*, all rotated in the same direction by the belt *g'*, which also passes around pulleys *h h'* from a pulley on any proper source of power. The said rollers comprising the set are of three kinds, and are located as follows: first, a screw-roller, *H*; secondly, a roller, *H'*, having inclined disks on an angular shaft; third, a screw-roller *H*², with its threads wound in an opposite direction to those on the roller *H*, after which follows a second roller *H'*, then a screw-roller *H*, then a third roller *H'*, a second roller *H*², and so on to the end of the sets, the rollers *H* and *H*² being respectively similar to the rollers *B* and *D*, and the rollers *H'* to the rollers *C*, though much smaller than the same. When the said set of rollers *G* are rotated in the proper direction to carry the straw coming to them from the first sets of rollers down on the screen *f*, their motion, in connection with that of the fan *I*, acting up through said screen, carries the straw and chaff above the rollers and over the same out of the discharge end of the machine, the straw receiving a similar lateral vibration to that received from the sets of rollers first described.

Having thus described my invention, I claim—

1. The combination, in a grain-separator, of the frame, the screens *E*, located therein, and

the rotating rollers journaled in the frame above the screens, arranged in pairs one above the other and having their opposing faces traveling in the same direction, and having the screw-threads running in opposite directions, whereby straw fed between the said pairs of rollers will be agitated and the grain dislodged therefrom and caused to fall onto the screens, substantially as described.

2. In a grain-separator, the combination of the pairs of rotating rollers *B B'* *D D'*, arranged one above the other, having their opposing proximate faces traveling in the same direction, and having the screw-threads running in opposite directions, and the pair of rotating rollers *C C'*, arranged between the pairs of rollers *B B'* and *D D'*, and having the ovoid disks *c*³ arranged obliquely on their shafts, substantially as described.

3. In a grain-separator, the combination of the inclined screen *f*, the rollers journaled above said screen in proximity thereto, said rollers rotating in the same direction, the alternate rollers having the screw-threads running in opposite directions, and the intermediate rollers having the obliquely-arranged disks, and the fan arranged below the screen *f*, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM LORENZO GILSON.

Witnesses:

JERRE YOCOM,
J. E. MAGERS.