

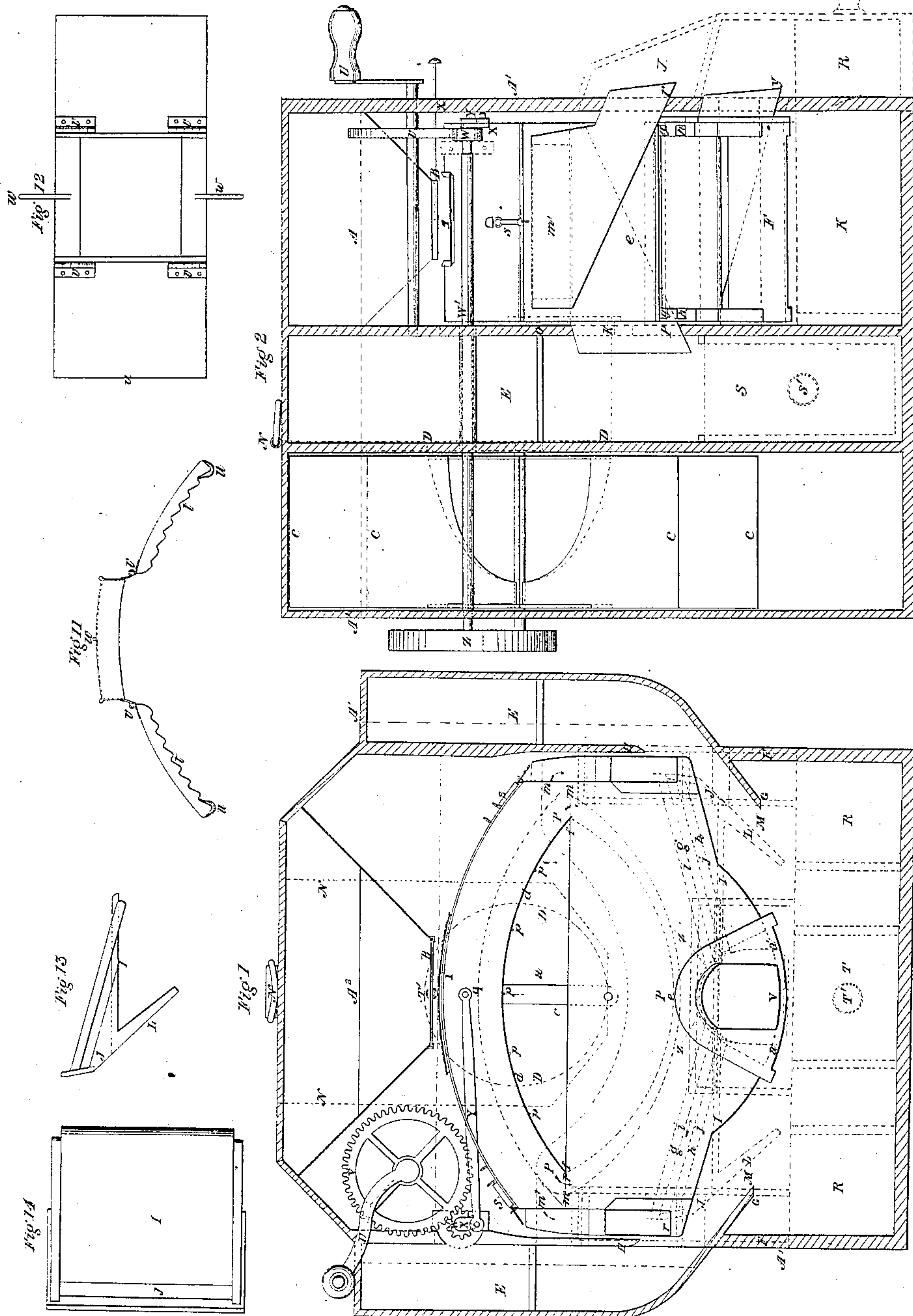
M. H. Collins,

2 Sheets, Sheet 1.

Flour Bolt.

N^o 25,884.

Patented Oct. 25, 1859.



Witnesses

*J. L. Munn
Wm. L. Taylor*

Inventor

M. H. Collins

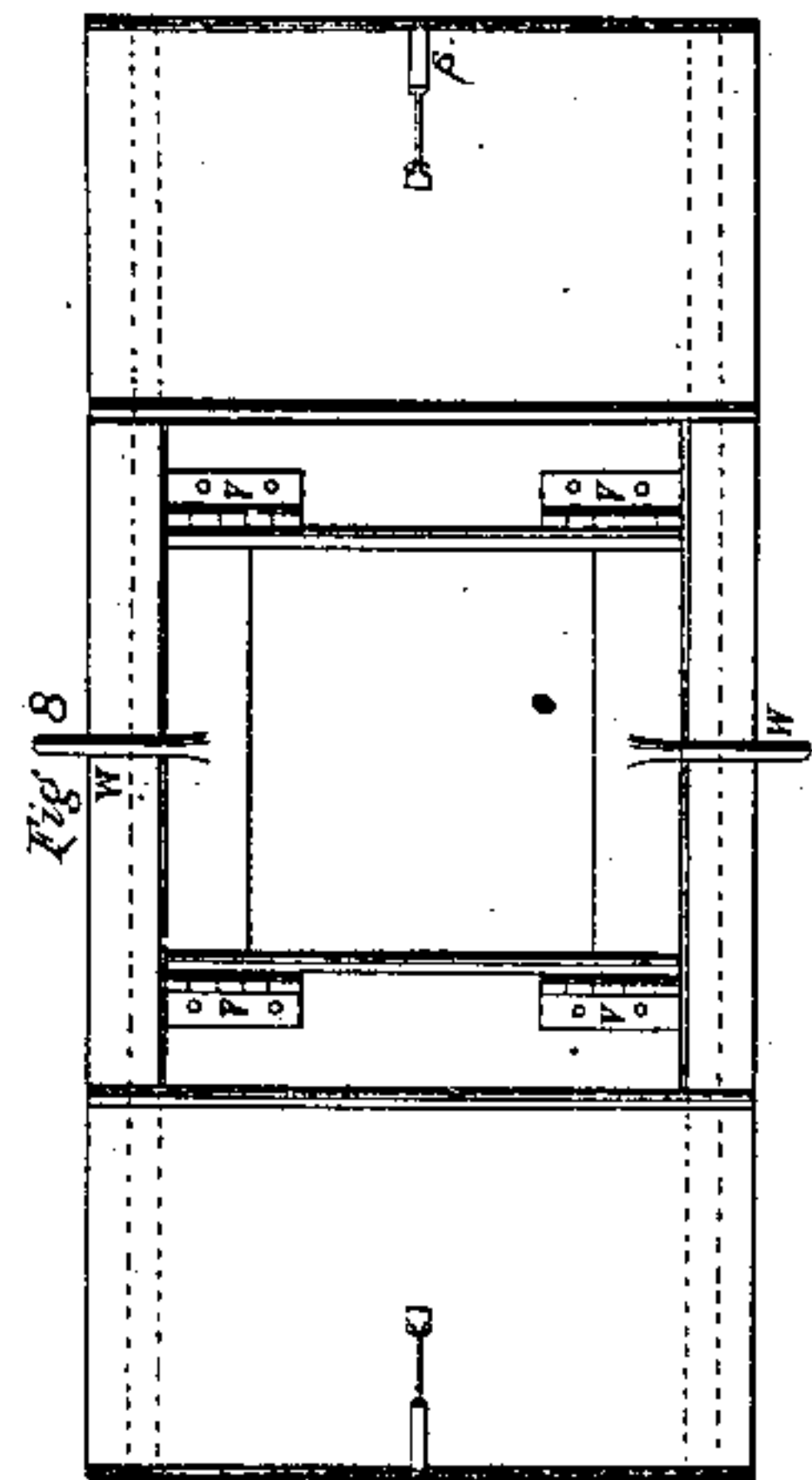
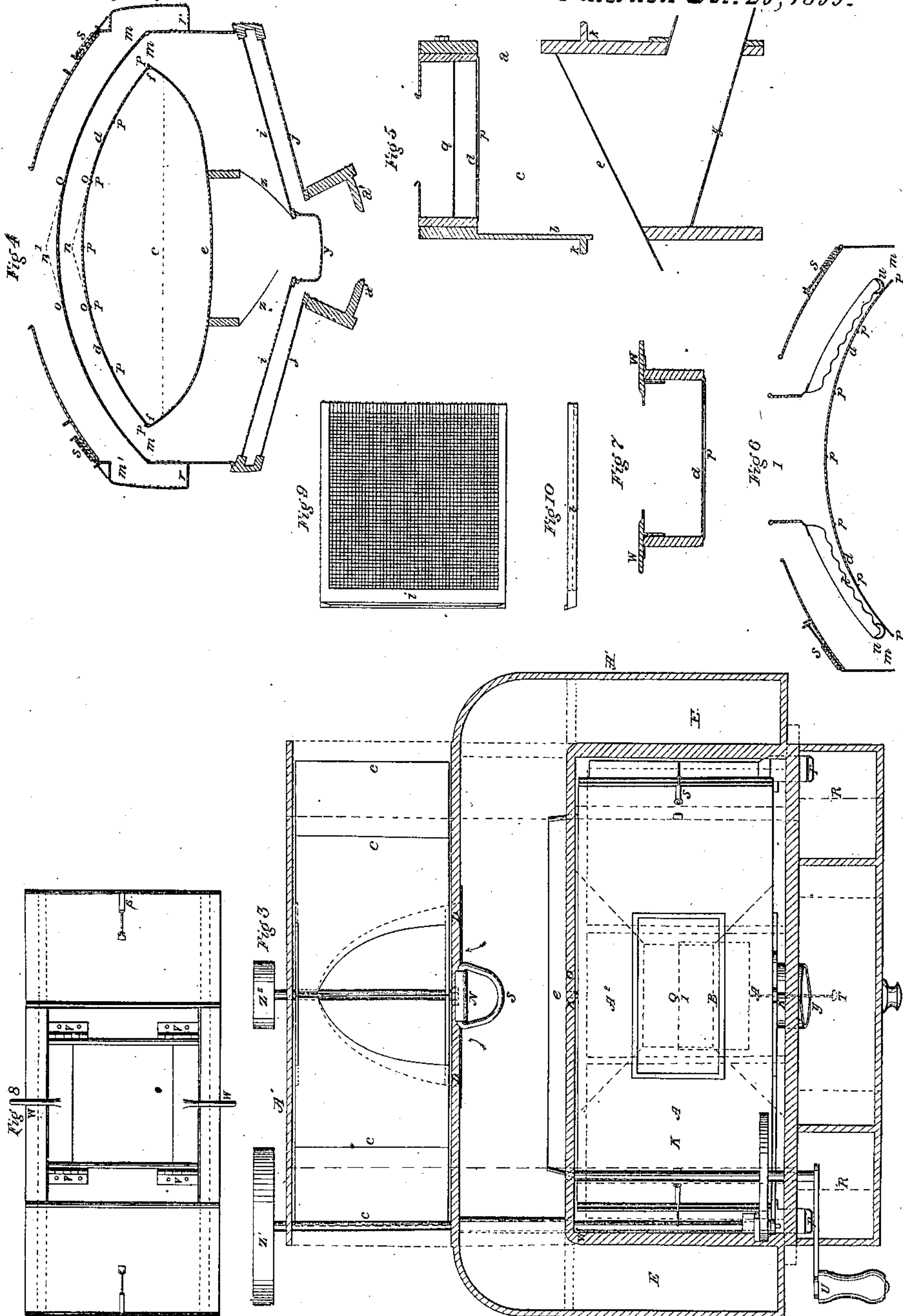
M.H. Collins

2 Sheets, Sheet 2.

Flour Bolt.

N^o 25,884.

Patented Oct. 25, 1859.



Witnesses:
J. L. Moore
Alfred L. Boyd.

Inventor
M.H. Collins.

UNITED STATES PATENT OFFICE.

M. H. COLLINS, OF CHELSEA, MASSACHUSETTS.

MACHINE FOR BOLTING FLOUR, &c.

Specification of Letters Patent No. 25,884, dated October 25, 1859.

To all whom it may concern:

Be it known that I, MICHAEL HENRY COLLINS, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented
5 a new and useful Machine for Bolting Flour, Meal, or other Substances Requiring a Similar operation; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had
10 to the accompanying drawing, forming a part of this specification, in which—

Figure 1, represents a vertical transverse section of the machine. Fig. 2, a vertical longitudinal section of the same. Fig. 3, a
15 sectional plan view. Fig. 4, a vertical transverse section of the bolting apparatus. Fig. 5, a transverse section of the upper part of the same, through the middle. Fig. 6, a longitudinal section through the bolting
20 frame and rubbers. Fig. 7, a transverse section of the same. Fig. 8, a plan view of the bolting frame with rubber inside. Fig. 9, a plan view of sieve. Fig. 10, side view of the same. Fig. 11, longitudinal section of
25 the rubber. Fig. 12, a plan view of the same. Fig. 13, a section of wind-fender, and Fig. 14, a plan view of the same.

Similar letters of reference, in each of the several figures, indicate corresponding parts.
30 The nature of my invention consists, 1st, in a curved frame, in which are placed one or more bolting sieves, the frame being open at each end for the discharge of bran or other coarse material; 2nd, in the combination with the frame and sieves of a corrugated rubber, the frame and sieves having a
35 vibrating motion in the path of a circle, while the rubber remains stationary; 3rd, in the arrangement of sieves of different sized meshes and having the same vibrating
40 motion, in the curved vibrating frame, and in the relation shown to a fan wheel which causes a draft at the back of the machine, as herein set forth; 4th, in the manner of arranging and combining the curved frame
45 and its attachments, with the fan so as to give the said frame and its attachments a vibrating motion, in the path of a circle and drive the fan wheel by the same crank shaft, as hereinafter set forth.
50

To enable others, skilled in the art, to make and use my invention, I will proceed to describe its construction and operation.

In Figs. 1, 2, and 3, A', represents the

outer frame of the machine. A², is the hop- 55 per for receiving the material to be bolted. B, is the slide at the bottom of the hopper for the purpose of regulating the quantity let on to the bolt in a given time. This opening in the bottom of the hopper is im- 60 mediately over the center of the frame containing the bolting sieves, and between the rubbers. This frame is represented in plan and section in Figs. 5, 6, 7 and 8.

q, is a coarse screen or sieve; d, is a fine 65 sieve; p, p, are rods to prevent the fine sieve or bolting cloth from sagging. C, C, in Figs. 2 and 3, are blades of the fan wheel; D, is a round opening in the partition, next the fan wheel; this opening leads into a 70 chamber c, communicating with flues E, E.

F, F, are openings through partitions H, H, for the passage of the air from the inclined planes G, G.

i, i, j, j, are sieves of different sized 75 meshes. L, is a wind guard, shown in red lines, also, shown separately in Fig. 13. This is movable and can be drawn out so as to enlarge or diminish the air passage M.

J, is an aperture for what falls through 80 the sieves i, and j, on plane I, to pass through to the receiving box K.

N, is a slide or damper, of sheet iron, sliding down from the top of the machine by which the opening D, can be partially or 85 entirely closed.

P, is an aperture in partition O, in the form of an inverted arch.

e, is a metallic inclined conductor, the lower end of which passes through the in- 90 verted arch; upon this conductor the fine flour falls from the bolt and from thence into the receivers.

K, Q, R, S, and T, are receivers for different qualities of flour, bran &c. 95

U, is a crank by which the machine is operated; V, is a spur wheel on the shaft to which the crank U, is attached and meshing into a small pinion wheel W², on shaft W'. 100

X, is a crank on shaft W.

Y, is a pitman attached to crank X, at one end and to the bolting frame at the other, by means of which the circular vibrating motion is obtained for the bolting frame. 105
K, K, are the centers upon which the whole bolting frame works, resting on journals on the frame A', within which it is placed; s, s,

are pins by which the curved bolting frame, as shown in Fig. 8, is held in its proper place.

z' , is a driving wheel on one end of shaft W' .

z^2 , is a small wheel on the shaft of the fan wheel, and driven by a band from z' ; h , and g , are grooves for sieves and wind-feeders; r, r , are the openings to the passages communicating with open ends of the bolting frame, by which such coarse materials as will not pass through the sieve with the largest meshes are carried to the receivers R, R ; y , is an opening to passage for conveying the bran to receiver T , when only one sieve is used in the bolting frame.

In Fig. 6, is shown a section of the rubbers within the movable frame containing the sieve or sieves; they are made of wood or other suitable material; t , represents the under surface between which and the upper rough surface of the coarser sieve the material to be bolted passes, and by the vibrating motion of the sieves under the permanent rubbers, is spread over the surface of the sieve and at the same time the flour is rubbed loose from the bran and a more perfect separation effected. The form of these surfaces may be varied, if thought desirable.

V in Fig. 8, where the rubbers are represented as within the bolting frame, are the hinges upon which they are hung, thus allowing an upward motion, at right-angles to the plane of the sieves, of the lower end of the rubbers to accommodate them to whatever sized materials may pass between them and the sieve; w, w , are irons attached to the frame of the rubbers, the outer ends resting in the holes in the permanent frame A' .

In the operation of this machine, it will be seen that the meal whether from wheat or other grain, is first placed in the hopper and from thence falls upon the bolting sieves and by their vibrating motion in the path of a circle is spread from the center toward each end, the fine flour falling through and depositing in the proper receiver, while the bran passes out at the upper ends of the bolting frame, falling down upon other sieves where it is again separated and the different qualities deposited in their proper receptacle. In this operation, the rubbers may or may not, be used. In clearing and separating grain from smaller seed and other

matter, the loose frame with the fine bolting sieve must be substituted by another with sieves of suitable meshes. In the passage of the grain, between the rubbers and the rough surface of the sieve by the vibrating motion of the sieve, it is freed from all foreign substances, the small seeds falling through the sieve and the grain passing out at the open ends, and falling down upon sieves of the larger meshes, where another separation is made, if desired. In its descent to the lower sieves, it passes through an upward current of air, produced by the action of the fan wheel, which frees it from all dust, chaff, or other light substances, which are carried out at the back of the machine and the grain, freed from all foreign matter, deposited in the receptacle prepared for it. The thickness of this air current may be varied by adjusting the wind fender so as to increase or diminish the air passage, and its force may be varied by covering a larger or smaller portion of the round aperture in the partition next the fan wheel, or, it may be stopped entirely by closing the whole of that aperture.

By substituting sieves adapted to the purpose, this machine may be used, without further change for separating sand or metallic ores.

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

1. A curved frame in which are placed one or more bolting sieves d, g , this frame being open at each end for the discharge of bran or other coarse material, substantially as and for the purposes set forth.

2. The combination with the curved frame and sieves of a corrugated rubber t , the frame and sieves having a vibrating motion in the path of a circle while the rubber remains stationary, substantially as and for the purposes set forth.

3. The arrangement of sieves of different sized, meshes and having the same vibrating motion, on the circular vibrating frame and in the relation shown to a fan wheel which causes a draft at the back of the machine, substantially as and for the purposes set forth.

M. H. COLLINS.

Witnesses:

J. C. LOVEJOY,
ARTHUR W. AUSTIN.