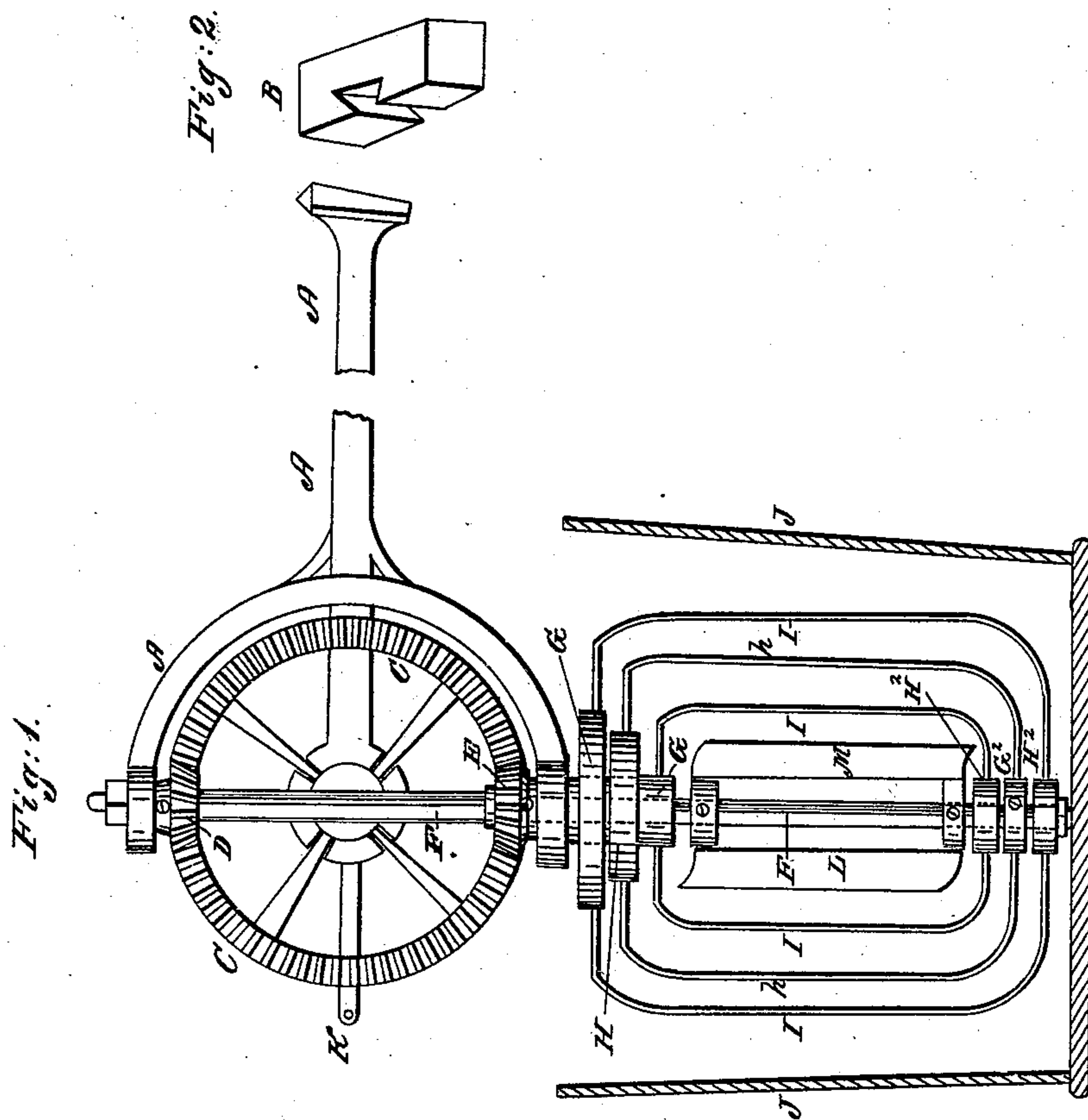


S. G. CHEEVER.

Churn.

No. 28,560.

Patented June 5, 1860.



Witnesses:
Winston B. Lucas.
John Shelton.

Inventor:
S. G. Cheever.

UNITED STATES PATENT OFFICE.

SIMON G. CHEEVER, OF BOSTON, MASSACHUSETTS.

MACHINE FOR MIXING PAINTS.

Specification of Letters Patent No. 28,560, dated June 5, 1860.

To all whom it may concern:

Be it known that I, SIMON G. CHEEVER, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful improvements constituting a machine for the purpose of mixing paints, oils, and other liquid as well as dry ground or powdered materials and which may also be used as a butter mill or churn.

To enable others skilled to make and use my invention I herewith describe its construction and operation, illustrating the same by the accompanying drawings and the letters of reference marked thereon forming a part of these my specifications.

Figure 1 shows the machine partially in section and partly in side view.

A, A, is an arm of metal which supports the machine in any convenient place for use by fitting at one end into a dovetail groove in the socket B, Fig. 2, the other end of the arm being so shaped as to mount and support the bevel gear driving wheel C, the pinions D and E, and the shaft F which passes perpendicularly downward through the whole of the operating parts.

G is a collar provided with shoulders to attach the upper ends of the beaters or mixers, which constitute the outer and inner series. This collar is provided with a recess shoulder between the parts to which the two series of beaters are fastened to allow the reception of the revolving collar H which receives and carries the upper ends of the middle series of beaters.

The collar G extends upward from the shoulder to which the outer series of beaters is attached, through the gudgeon hole in the arm A, and also into the pinion E to which it is fastened by a set screw or other convenient means.

The upper pinion D is attached firmly to the shaft F and turns it.

I, I, are the outer and inner series of beaters or mixers and these at the lower ends are attached to the collars H² H², which turn on the shaft, while between them the collar G², which turns with the shaft by means of its set screw, receives and carries the lower ends of the middle series of beaters.

h h are the middle series of beaters or mixers revolving between the outer and inner series.

L is an inclined or curved blade attached to and turning with the shaft F. M is a

like shaped curved blade, turning with the shaft, and opposite the blade, L.

J, J, represent the vessel in section.

K is the crank.

Operation of the machine: An inspection of the drawings and description will show that the arrangement of the pinions on opposite sides of the driving wheel, and their connections through the collars with the outer and inner series of beaters or mixers, and the action of the central curved blades, is to throw the material constantly from the center to the circumference and there to submit it to the opposing forces of the beaters revolving in opposite directions, and more thoroughly to mix or beat it there than can be done by any other arrangement—for instance, where there are only two sets of blades, one revolving opposite to the other, the mass more or less moving with them and is not thoroughly acted upon, and if the beaters are placed at any distance from the center there is a mass of material that scarcely receives any action from the machine, while by my arrangement the opposing forces and currents are so various and constant that no part of the material remains unacted upon by the beaters or mixers. Again, the arrangement of my machine allows the fitting of various shaped blades or beaters to suit the work in hand. It is only necessary to unscrew the set screws in each collar, and those which confine the central curved blades, and that of the lower pinion and another set of beaters or mixers may be placed in position better suited to the density or tenacity of the material to be acted upon, and I would here remark that I do not confine myself to the exact forms of blades given in the drawing or to any precise number of them nor to any specific material, as these may be varied at pleasure to suit the work to be done so long as the principle of construction is adhered to, viz., to throw the material from the center to the circumference and there act upon it by the three series of blades, the middle series turning in a direction opposite to the outer and inner ones.

I am aware that it is not new to turn pinions or actuate machinery in opposite directions by means of gearing them on opposite sides of a driving wheel, as this is seen in the mill governor and various other devices. Neither is it new to construct a mixing mill with mixers running in opposite

directions as this is seen in pulp mixers for paper mills; nor is a churn with dashers or beaters turning oppositely a new thing; therefore I do not broadly claim these devices. But

What I do claim as novel and useful is—
The arrangement of the collars which hold and move the mixers or beaters in their relation to each other and the actuating parts
10 so that while the middle series move in one

direction the outer and inner series shall move in the other in combination with the central curved blades, attached to the central shaft, all moving and operating substantially as set forth.

S. G. CHEEVER.

Witnesses:

A. E. GILES,
BENJ. POND.