

(No Model.)

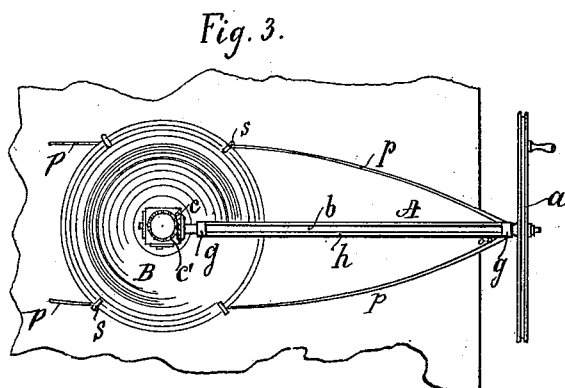
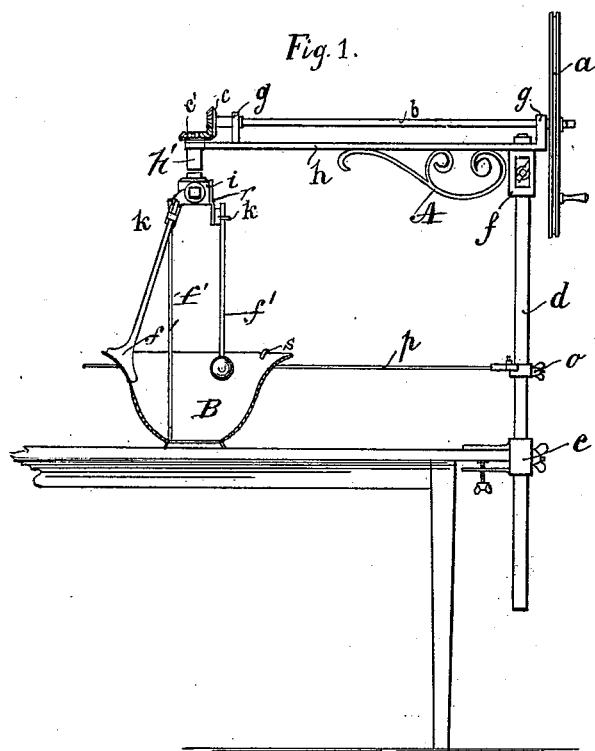
3 Sheets—Sheet 1.

R. HÄNDEL.

APPARATUS FOR STIRRING AND MIXING FLUIDS, POWDER, &c.

No. 421,704.

Patented Feb. 18, 1890.



Witnesses.
C. Sedgwick
G. M. Ritter

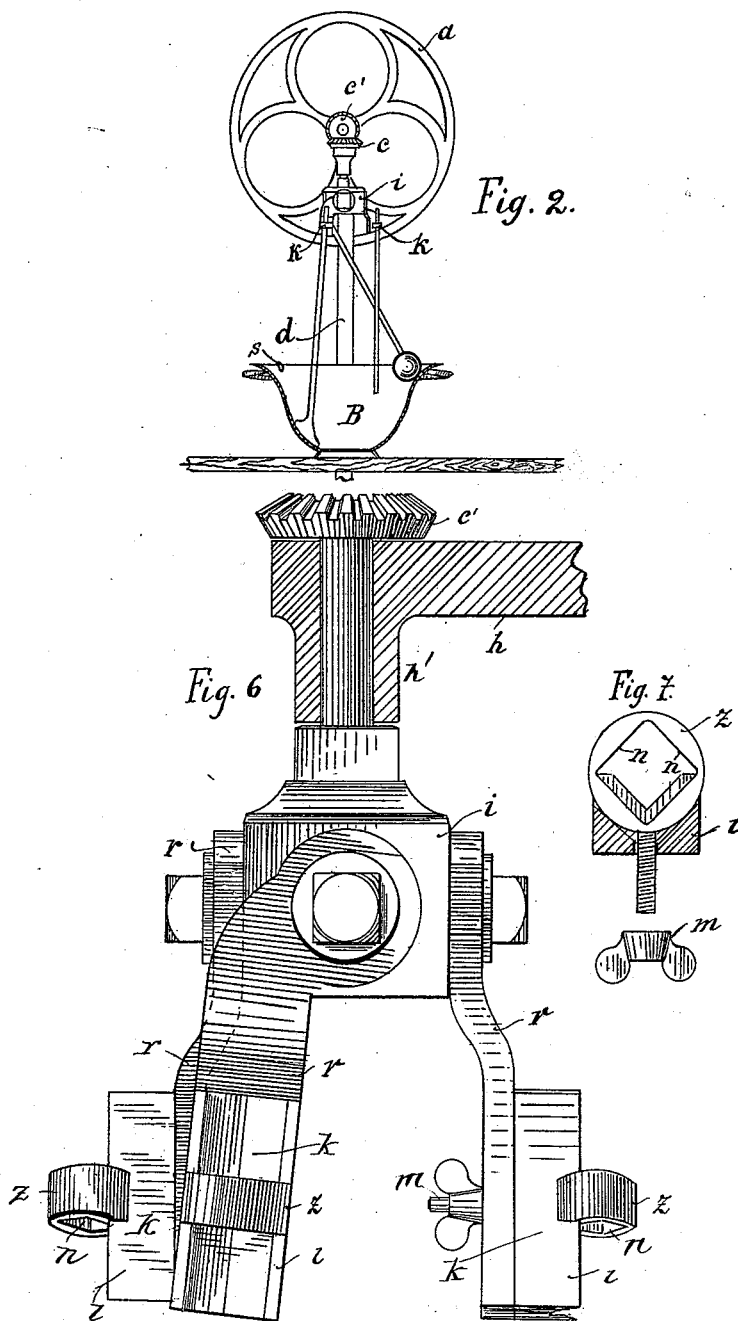
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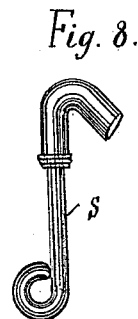
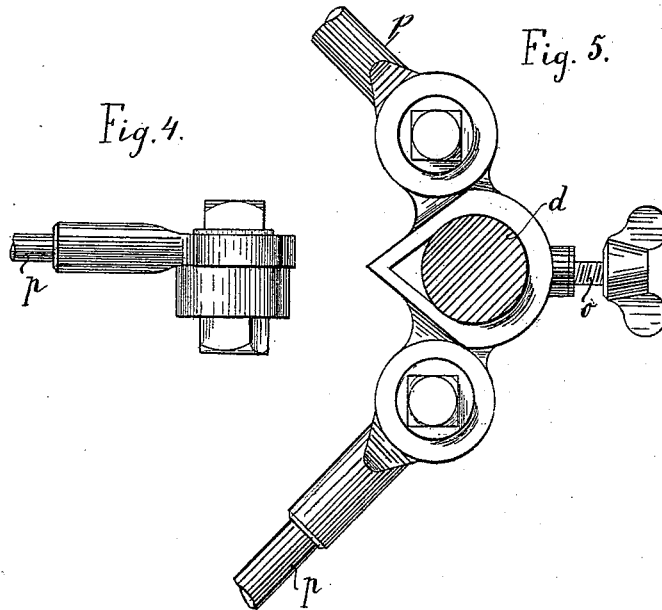
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UNITED STATES PATENT OFFICE.

REINHOLD HÄNDEL, OF LEIPSIC, SAXONY, GERMANY.

APPARATUS FOR STIRRING AND MIXING FLUIDS, POWDER, &c.

SPECIFICATION forming part of Letters Patent No. 421,704, dated February 18, 1890.

Application filed July 22, 1889. Serial No. 318,271. (No model.) Patented in Germany February 27, 1888, No. 44,413.

To all whom it may concern:

Be it known that I, REINHOLD HÄNDEL, of Leipsic, in the Kingdom of Saxony and German Empire, have invented a new and Improved Apparatus for Stirring and Mixing Fluids, Powder, and Similar Substances, (for which I have obtained Letters Patent in Germany, dated February 27, 1888, No. 44,413,) of which the following is a full, clear, and exact description.

The object of my invention is to provide an adjustable device whereby powder, dough, thick liquids, and similar materials may be thoroughly commingled or mixed in any suitable receptacle.

A further object is to furnish an adjustable stirring-machine which will operate its stirrers in different planes within the receptacle that holds the materials operated upon, and also that will remove any of the liquid or plastic compound from the upper edge of the receptacle, which may be there deposited by the stirring operation.

With these objects in view my invention consists in certain features of construction and combinations of parts, which will be hereinafter described, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the device in position for use. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view of the apparatus; and Figs. 4, 5, 6, 7, and 8 are enlarged details of construction.

A is a bracket-frame, that may be clamped upon the edge of a table or other similar support, on which the receptacle for materials to be mixed is placed, as at B, Figs. 1, 2, and 3. To the vertical rod *d* there is attached a clamp device *e*, by which the rod *d* can be held at any height and adjusted as desired, to the edge of a table, as shown in Fig. 1. At the upper end of the rod *d* there is a clamp *f*, by which there is connected to the rod *d* a horizontal arm *h*, which arm or bracket *h* is provided with bearings *g*, in which a shaft *b* runs. On one end of the shaft *b* there is a fly-wheel *a* secured, and at the other end a bevel-toothed wheel *c* is attached. At the

end of the bracket *h* there is a bearing *h'*, (see Fig. 6,) in which is journaled the cross-head *i*. The top of the cross-head is provided with a bevel-toothed wheel *c'*, which meshes with the bevel-wheel *c*, that is located on the end of the shaft *b*. Attached to the cross-head *i* there are arms *r*, which are formed as shown in Fig. 6. These arms are provided at the lower ends with the clamp devices *k*, which clamps *k* consist of the pieces *l* (which have on the outer side a longitudinal groove intersected by a transverse groove) and the clamp-rings *z*, which have a square hole *n*, and are tightened or brought up in the said transverse grooves to the arms *r* by the screws and nuts *m*. The clamp-rings *z* receive the shafts of the stirrers. The arms *r* are pivoted to the cross-head *i*, so that they can be adjusted in their spread and tightened up to the cross-head by their connecting-screws.

On the rod *d*, between the clamps *e* and *f*, there is a clamp *o*, which can be adjusted vertically. It carries two arms *p*, connected as shown in Figs. 4 and 5, and another pair of similar arms are similarly connected to a suitable support at the other side of the table. The vessel B is held between these arms, as shown in Fig. 3.

When the apparatus is used, the three stirring ring wings or blades *f'* are placed in the clamp-rings *z* at the required height and are fixed by tightening up the thumb-screws *m*. The stirring-wings are set in such a manner that their lower ends touch the inner surface of the vessel B at different parts, and they are set in motion by the fly-wheel *a*, through the shaft *b*, the bevel-wheels *c* *c'*, and the cross-head *i*. The hinged arms *p* serve, by reason of their elasticity, to prevent the breaking of the vessel by the continuous striking of the stirrers against it.

The vessel B is held to the arms *p* by the hooks *s*, (see Figs. 3 and 8,) and owing to the spring of said arms the vessel may be kept perfectly and securely tight by moving the clamp *o* lower down on the rod *d*.

By means of the stirrers placed at different heights all the parts of the thick mass are brought relatively in contact with them, and consequently also with the atmospheric air; and it is evident that the work of stirring and

striking off the dough is done much better and quicker with this machine than it could be done by hand labor. The machine can be operated by means of any suitable power.

5 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a bracket-frame, a horizontal shaft adapted to rotate upon the
10 bracket-frame, and a fly-wheel and bevel gear-wheel on said shaft, of a revoluble cross-head, a bevel gear-wheel on the cross-head, stirrer-

arms pivotally secured to the cross-head, a receptacle for the material to be stirred, and vertically-adjustable laterally-extended arms 15 engaging the receptacle at its edge to retain it in position, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

REINHOLD HÄNDEL.

Witnesses:

B. ROI,

WILHELM PATAKY.