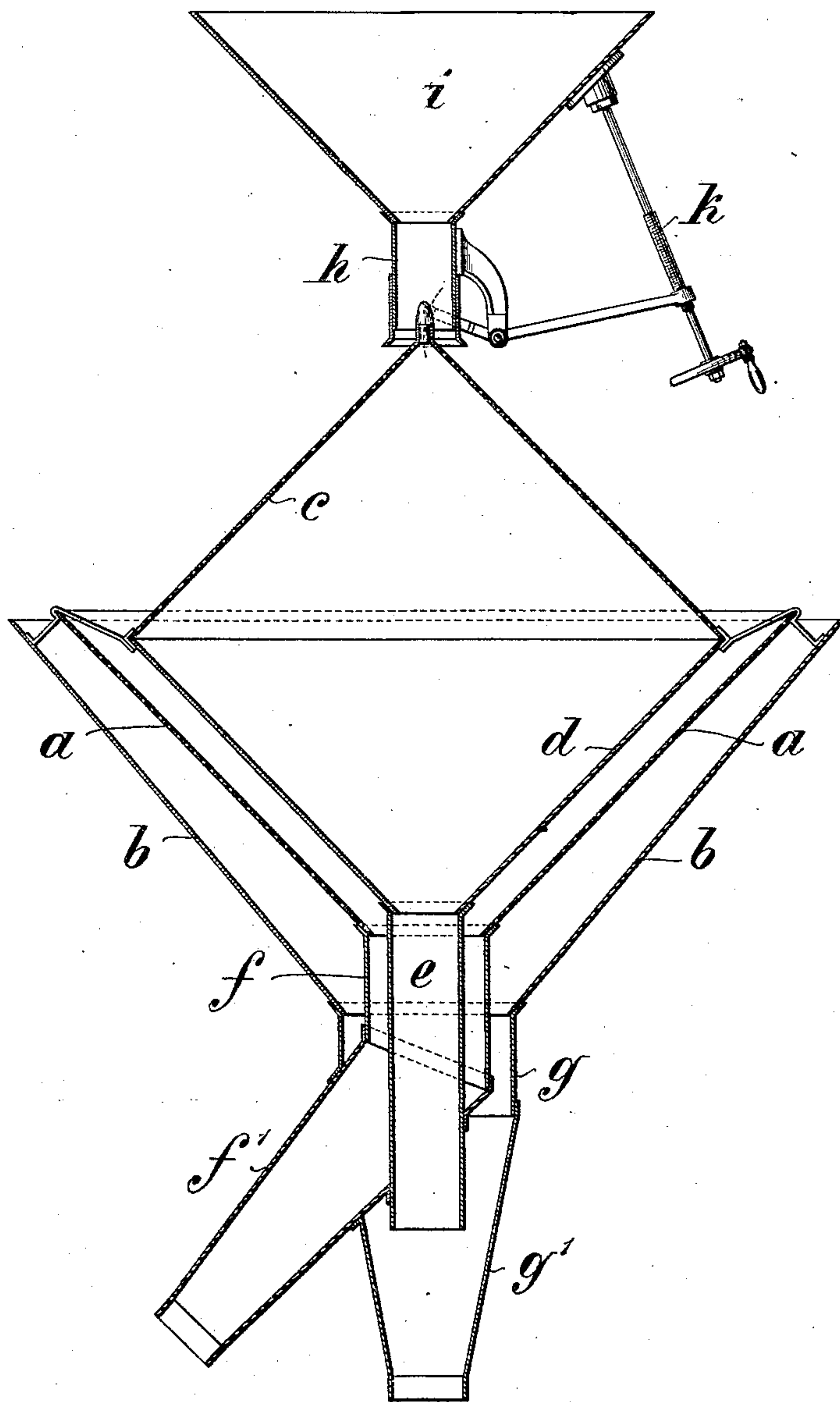


No. 841,959.

PATENTED JAN. 22, 1907.

J. GENTRUP.
SIFTING OR SCREENING APPARATUS.
APPLICATION FILED JUNE 5, 1905.



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JOSEF GENTRUP, OF BROCHTERBECK, NEAR MÜNSTER, GERMANY.

SIFTING OR SCREENING APPARATUS.

No. 841,959.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed June 5, 1905. Serial No. 263,855.

To all whom it may concern:

Be it known that I, JOSEF GENTRUP, a subject of the King of Prussia, German Emperor, and a resident of Brochterbeck, near Münster, Germany, (whose post-office address is Brochterbeck, near Münster, Prussia, German Empire,) have invented Improvements Relating to Sifting or Screening Apparatus, of which the following is a specification.

This invention has for its object a stationary—that is to say, an unoperated—funnel or conical gravity-sieve, in which, while dispensing with any parts for producing centrifugal force or shaking, the momentum of the falling material alone is utilized in such a manner that all movable parts and the wear inherent in the same are avoided, while the sifting or bolting is effected more expeditiously and more efficiently.

The means employed for this purpose consist of a principal funnel-sieve with an angle of inclination such that a spontaneous rolling down of the material on the sieve-surface is insured without the provision of appliances for moving or shaking this surface, of a distributing member fixed above the funnel-sieve and likewise conical in form, which member, acting as a sieve and presenting a correctly-calculated angle of inclination, delivers the material uniformly spread out and broken up into an outer annular channel supplying the funnel-sieve, and, further, comprise the provision of a receiving-hopper beneath the distributing-cone for the reception of the material of the first sifting operation which does not reach the funnel-sieve, and, finally, appropriate conveying and delivering devices.

A constructional form of sifting apparatus designed in accordance with the novel ideas set forth above is illustrated in the accompanying drawing, its essential parts being shown in axial vertical section.

In this apparatus, *a* is the principal sieve, which is here termed the “funnel-sieve,” and throughout this description “funnel” and “hopper” are invariably used to designate a conical body with its apex lowermost, while by “cone” should be understood a body which is similar geometrically, but which is arranged with its apex uppermost.

The funnel-sieve *a* is constructed with an angle of descent appropriate for the frictional or sliding angle of the material to be treated,

and the perforated sheet metal or other material used for the purpose should, of course, be selected with due regard to the class of material that it is intended to treat in the apparatus.

The funnel-sieve *a* is connected with a receiving-hopper *b*, and this connection may be conveniently effected at the upper part by means of lugs provided on the edge and likewise by appropriately connecting the discharge-conduits *ff'* and *g g'*.

Upon the upper edge of the funnel-sieve is fixed the distributing-cone *c* by means of lugs, as shown, and this body, which exerts a very important effect at the beginning of the operation upon the material to be sifted, should of course be constructed as regards its angle of inclination so as to correspond with the funnel-sieve, and it should be perforated in a manner suited to the material to be treated. Surrounding the base of the distributing-cone is an annular channel, the outer wall of which is formed by the upper part of the funnel-sieve, through which channel the material from the distributing-cone passes to the funnel-sieve.

The receiving-hopper *d* is fitted to the lower edge of the distributing-cone *c*, this hopper directly catching any material falling through the cone *c* during the charging of the funnel-sieve *a*, thereby freeing it from attack by the entire mass of material, thus rendering the treatment of this latter not only more speedy, but more easy, because, as is well-known, not only does the freedom with which particles roll increase with their size, but, further, a fine or sandy mass will retain coarse particles embedded in it, thereby making it more difficult for these particles to roll and accordingly rendering it more troublesome to sift them.

The material to be treated is conducted to the distributing-cone *c*, which is preferably constructed with a sharp apex through an annular passage in the known manner, and usually as directly as possible from conveyer-channels or similar transporting appliances discharging into a feed-hopper *i*, which is appropriately connected with the frame of the entire apparatus. This hopper *i* conducts the material onto the distributing-cone *c* through a tube *h*, which may advantageously be telescopic in construction in the known manner. It is likewise preferably pro-

vided with adjusting means, so that the annular slit through which the material passes onto the apex of the distributing-cone *c* may be exactly regulated in accordance with the
5 nature of the material treated and the rate at which it is supplied to the apparatus.

While the fine material which has passed through the funnel-sieve *a* proceeds over the receiving-hopper *b* and falls into the
10 discharge-pipe *g g'*, the coarser material, which is unable to pass through in this manner, rolls down *a* and passes out laterally through *f f'*. The tube *e*, fitted to the receiving-hopper *d* of the cone *c*, also passes
15 through this latter, and in this manner, notwithstanding the fact that the sifting operation takes place in two "phases," so as to speak, the fine and coarse material obtained at different places is discharged through two
20 outlets only.

The coöperation of a funnel-sieve in accordance with the foregoing description, which gives full play to the rolling or falling force of the material treated with a station-
25 ary distributing-cone, and likewise appropriate receiving and discharge members, produces a total operative effect in the novel undriven unoperated sifting apparatus such that this latter, even though of small dimensions, is able to treat considerable quantities
30 even of more or less agglomerated material with great rapidity and with the formation of but little dust, while the liability of the

sieves to become stopped and the necessity for scraping the same is reduced to a minimum. 35

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

1. In a sifting apparatus the combination of a stationary perforated distributing-cone, 40 receiving-hopper beneath the distributing-cone, stationary funnel-shaped sieve, annular channel between the base of the distributing-cone and the upper part of the funnel-shaped sieve, receiving-hopper around said funnel- 45 sieve and discharge-conduits for the fine and coarse material, substantially as and for the purpose set forth.

2. In a sifting apparatus the combination with a feed-hopper, a stationary perforated 50 distributing-cone, receiving-hopper beneath the distributing-cone, stationary funnel-shaped sieve, annular channel between the base of the distributing-cone and the upper part of the funnel-shaped sieve, receiving- 55 hopper around said funnel-sieve and discharge-conduits for the fine and coarse material, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set 60 my hand in presence of two subscribing witnesses.

JOSEF GENTRUP.

Witnesses:

LUCAS SONKER,

AUGUST SIEGFRIED DOGAN.