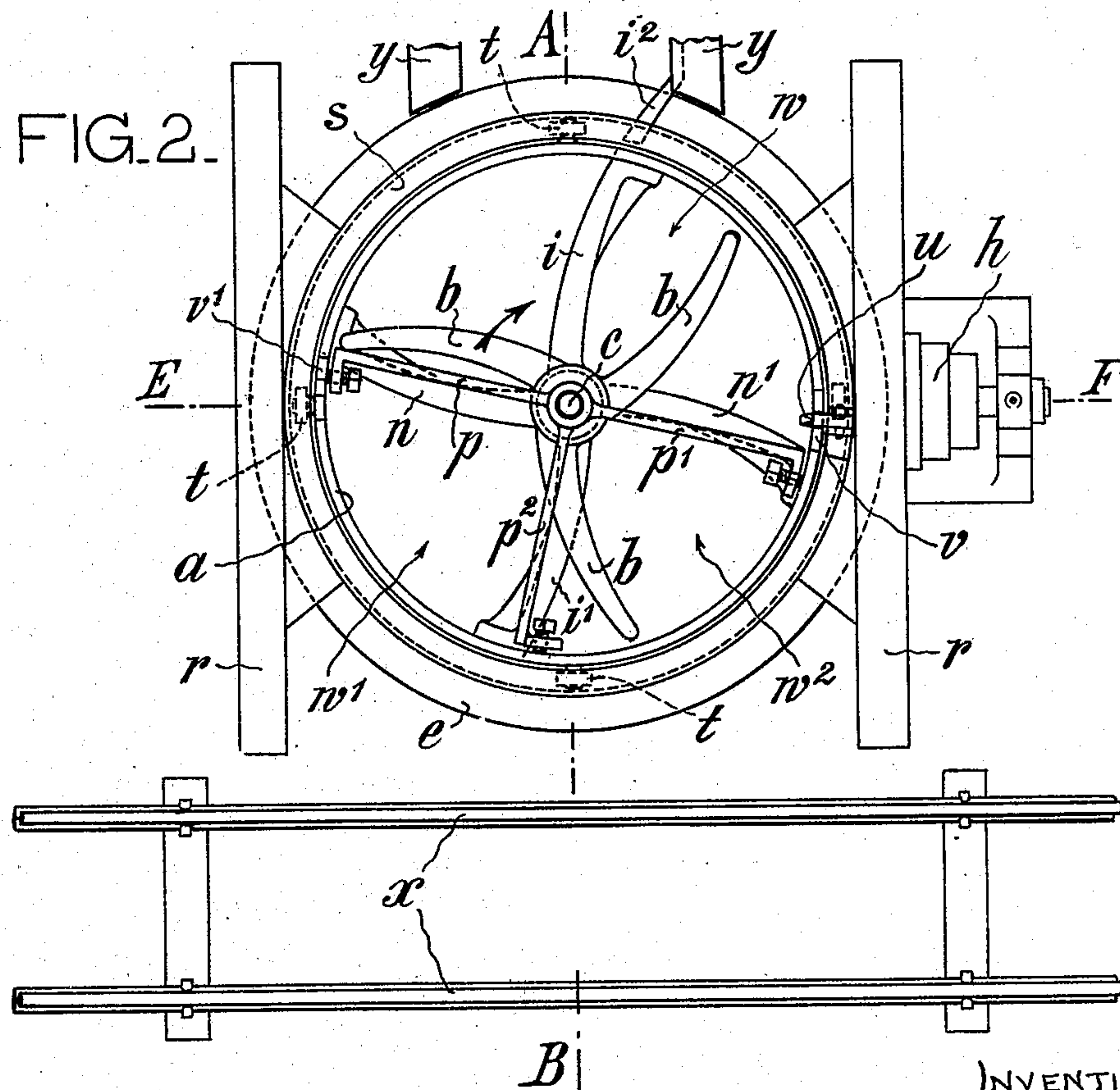
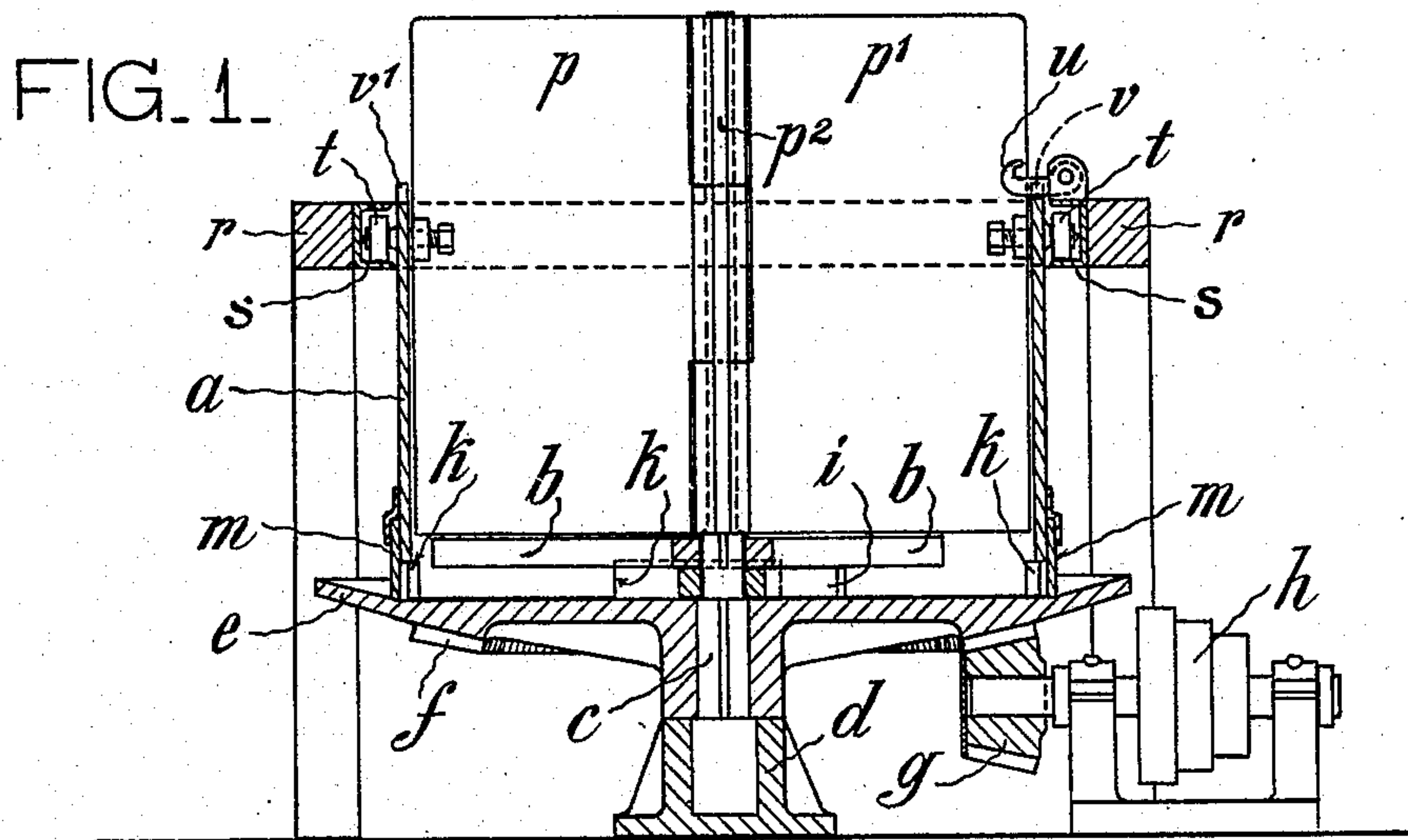


C. GIELOW.  
CHARGER FOR CERAMIC MATERIALS.  
APPLICATION FILED JULY 23, 1908.

911,816.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.



WITNESSES:

*W. H. Berrigan*  
*John H. Hoving*

INVENTION.  
CHRISTIAN GIELOW,  
by *Wm. Olden*  
Attorney.

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FIG. 3.

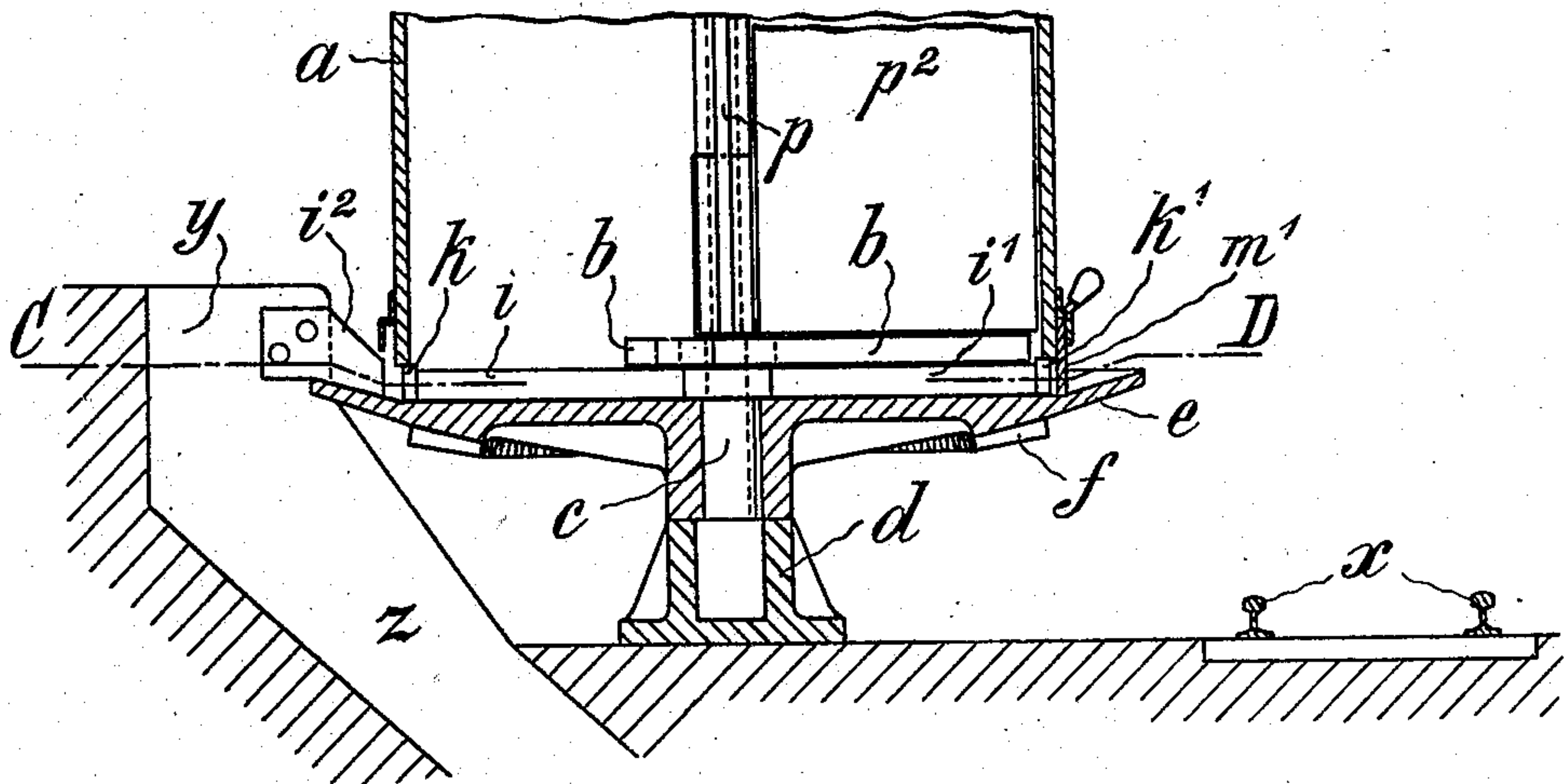
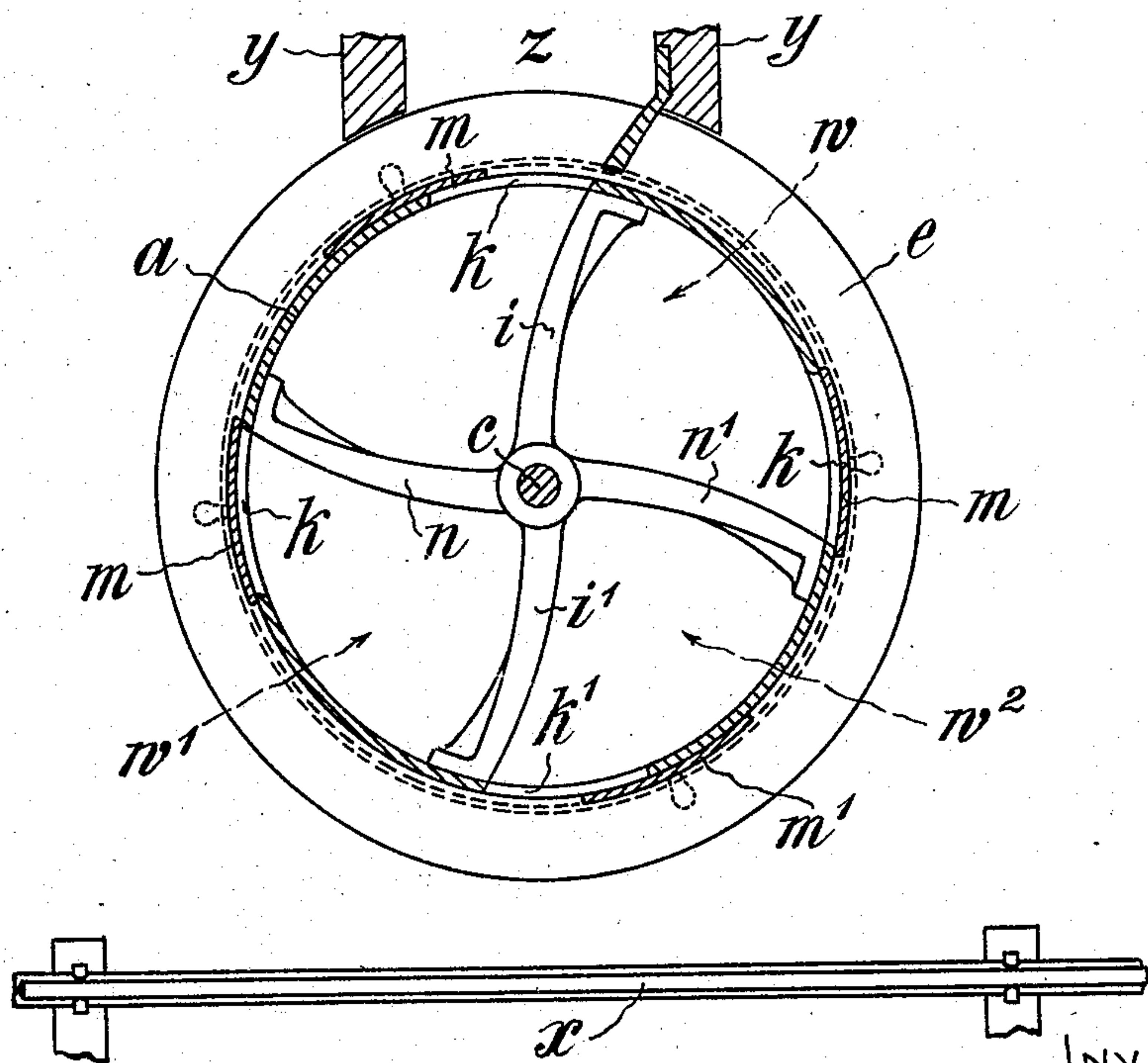


FIG. 4.



WITNESSES:

*W. H. Berrigan*  
*John H. Howing*

INVENTOR.  
CHRISTIAN GIELOW,  
by *Frank Oldemeel*  
Attorney.



# UNITED STATES PATENT OFFICE.

CHRISTIAN GIELOW, OF GÖRLITZ, GERMANY, ASSIGNOR TO RICHARD RAUPACH MASCHINEN-FABRIK GOERLITZ, G. M. B. H., OF GÖRLITZ, GERMANY.

## CHARGER FOR CERAMIC MATERIALS.

No. 911,816.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed July 23, 1908. Serial No. 444,974.

*To all whom it may concern:*

Be it known that I, CHRISTIAN GIELOW, subject of the King of Prussia, residing at 28 Jakobstrasse, Görlitz, in the Kingdom of Prussia and Empire of Germany, have invented new and useful Improvements in Chargers for Ceramic Materials, of which the following is a specification.

For feeding ceramic materials to machines or apparatus stationary hoppers with rotatory bottoms, stationary scrapers and rotatory knives have already been employed, the scrapers and knives being oppositely bent and adapted to push the materials to the periphery of the revolving bottom for discharging them through openings to without. By means of vertical partitions such hoppers have been divided into several compartments which are to receive different materials, so that after leaving the openings these materials can be collected and supplied to the respective machine or apparatus. The vertical partitions have been made adjustable for adjusting the proportion of the different compartments. The said hopper presents the defect, that its several compartments require to be filled with the various materials from different sides, so that the various trucks or wagons containing the materials will have to be moved to the right side by means of sundry tracks, turntables and the like.

My invention relates to improvements in such charging apparatus, whereby the different materials to be charged can be better distributed and their proportion, when once adjusted, can be maintained more exactly than hitherto, and it is rendered possible to charge the several compartments of the hopper with materials of various kinds from one side only, so that a single track will do and the operation of the hopper or charger is simplified. According to my invention the charger is made turnable around its vertical axis. The openings in its periphery above the revolving bottom are arranged to be more or less opened and closed by means of slides, whereby it is rendered possible to regulate to a nicety the quantities of the different materials to be discharged from the charger.

The rotatory bottom is made larger in diameter than the hopper and one or several stationary scrapers are disposed, which form

the continuation of one or several of the stationary scrapers within the hopper and are adapted to scrape off from the periphery of the rotatory bottom the materials discharged from the hopper through the openings and to conduct them to one or several channels, through which they can be further conducted to the respective machine or apparatus. When only a single stationary external scraper is disposed, it will collect all the different materials discharged in the adjusted proportion and deliver them to its channel. When some of the external scrapers are engaged, they can be so arranged as to severally scrape off from the periphery of the rotatory bottom one or two or more different materials discharged from the hopper and to conduct them to their respective channels.

Means are provided for normally stopping the turnable hopper and for releasing it so as to permit it to be taken along with the rotatory bottom through a certain angle after which it is stopped, so that the respective compartment or compartments can be charged from the truck or wagon on the single track.

I will now proceed to describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a vertical section through my improved charger in a mode of execution on the line E—F in Fig. 2, Fig. 2 is a plan of the same, Fig. 3 is a vertical section through the lower part of the same on the line A—B in Fig. 2, and Fig. 4 is a horizontal section through the same on the line C—D in Fig. 3.

Similar letters of reference refer to similar parts throughout the several views.

In a frame *rr* of any known construction is secured a horizontal race-ring *s*, which is shown as made from U-iron. Within the race-ring *s* a cylindrical hopper *a* is mounted to turn, while it is supported by several (here four) wheels *t t*, which are mounted to turn on pins fixed on the hopper and to run within the race-ring *s*. The hopper *a* is below closed by a rotatory circular bottom *e*, which is keyed upon a vertical shaft *c* and is arranged to be driven in any known manner. In the drawings for example a cone pulley *h* is shown which is driven from without and is adapted to drive the bottom *e* by means of a bevel pinion *g* and a bevel gearing *f* on the



bottom. The vertical shaft *c* is journaled in a foot step *d* of any known construction and in the nave of a stationary four-armed scraper *i n i<sup>1</sup> n<sup>1</sup>* (see Fig. 4), which is fastened  
 5 on the inside of the hopper *a*. The arms *i n i<sup>1</sup> n<sup>1</sup>* are bent in one direction and adjoin suitable openings *k k<sup>1</sup>* provided in the periphery of the hopper *a* above the bottom *e*. The said arms sweep the bottom *e* and are adapted  
 10 to work together with three known knives *b b*, which are fastened on the shaft *c* and are bent in the opposite direction, so that during the rotation of the bottom *e* with the knives *b b* in the direction of the arrow in Fig. 2 on  
 15 any knife *b* sweeping over the scraper arms *i n i<sup>1</sup> n<sup>1</sup>* they will act together somewhat like a pair of scissors and push the material on the bottom *e* to the periphery of the hopper *a* towards the respective opening *k* through  
 20 which the material can leave the hopper. The openings *k k<sup>1</sup>* can be closed with movable slides *m m<sup>1</sup>*, which can be severally adjusted by means of their handles shown, so as to regulate the area of the opening and thereby  
 25 the quantity of material passing through it to without per unit of time. The bottom *e* is made larger in diameter than the hopper *a* and its external annular excess may be made slightly conical, as shown, it ascending to the  
 30 periphery. Several adjustable partitions *p p<sup>1</sup> p<sup>2</sup>* of any known construction are disposed within the hopper *a*, so that the contents of the compartments *w w<sup>1</sup> w<sup>2</sup>* formed by them can be varied as may be desired. A  
 35 turnable lock *v* is disposed on the race-ring *s* and is adapted to engage between two projections *v* or *v<sup>1</sup>* provided on the upper edge of the hopper *a* on opposite sides for preventing the hopper from turning. Where so preferred,  
 40 the projections *v v<sup>1</sup>* may be omitted and notches may be provided in the upper edge of the hopper *a*, so that the turnable lock *u* can engage into any of these notches.

In the drawings a single external scraper *i<sup>2</sup>*  
 45 is shown as fastened on some structure *y* above a channel *z* and arranged to sweep the external annular portion of the bottom *e* without the hopper *a*. This external scraper *i<sup>2</sup>* is shown as forming the continuation of the  
 50 arm *i* of the internal scraper, so that it directs the material passing through the opening *k* at once to the channel *z*, into which the material is permitted to drop for sliding down to the respective machine or appar-  
 55 ratus.

When the slide *m* facing the channel *z* is alone more or less opened, of course only the material in the compartment *w* will be permitted to pass through the opening *k* to the  
 60 channel *z*. When two opposite slides *m* and *m<sup>1</sup>* are more or less opened as shown in Fig. 4, the material in the compartment *w<sup>2</sup>* will pass through the opening *k<sup>1</sup>* to without and move with the revolving bottom *e* until it strikes  
 65 the material leaving the compartment *w*

through the opening *k*, when both materials will be together scraped off from the periphery of the bottom *e* and will fall into the channel *z*. By adjusting the two slides *m* and *m<sup>1</sup>* the proportion of the two materials falling  
 70 into the channel *z* can be varied, and after the adjustment this proportion will be maintained henceforward. When in addition to the said two slides *m* and *m<sup>1</sup>* the slide *m* on the right in Fig. 4 is more or less opened, of  
 75 course the material contained in the compartment *w* will be permitted to simultaneously leave the hopper *a* through two openings *k k<sup>1</sup>*. The material passing through the right opening *k* will first move with the ro-  
 80 tating bottom *e* until it meets the material passing from the compartment *w<sup>2</sup>* through the opening *m<sup>1</sup>*, when both materials will together move with the bottom *e* until they strike the material leaving the compartment  
 85 *w* through the upper opening *k* in Fig. 4, whereupon all the materials are scraped off and slide down the channel *z*. When all the four slides *m m<sup>1</sup>* are more or less opened, of course the three different materials contained  
 90 in the compartments *w, w<sup>1</sup>* and *w<sup>2</sup>* are simultaneously discharged through the four openings *k k<sup>1</sup>* and together scraped off by the external scraper *i<sup>2</sup>*. Of course the proportion of the three different materials can be varied  
 95 by adjusting the four slides *m m<sup>1</sup>*. Where so preferred, a fourth adjustable partition may be disposed in addition to the three partitions *p p<sup>1</sup> p<sup>2</sup>*, so that each of the four compartments so formed will have a separate  
 100 outlet.

In addition to the one external scraper *i<sup>2</sup>* shown a second one may be disposed, for example so as to form the continuation of  
 105 the internal scraper arm *n*, and may conduct to a second channel similar to *z*, which leads to another machine or apparatus. It is obvious, that in this case one material only will pass from the compartment *w* to the  
 110 channel *z*, while either one or two or three different materials will pass to the other channel, one or two or all of the three remaining slides *m m<sup>1</sup>* being more or less opened. In case the second external scraper is disposed opposite to the first one *i<sup>2</sup>*, of  
 115 course one or two different materials only can be scraped off at a time and permitted to fall into each channel. Where so preferred, three or four external scrapers may be disposed for scraping the materials off the  
 120 periphery of the bottom *e* into adjoining channels. In this case it is obvious, that by opening and closing the slides *m m<sup>1</sup>* the materials from any one or two or three or four different compartments can be directed to  
 125 any one or more of the channels. In case only two different materials are to be fed to one or several channels, of course a single plain vertical partition may be employed, which divides the hopper into halves, or two  
 130



adjustable partitions  $p$  and  $p^1$  or  $p^2$  may be employed, if the contents of the two compartments are to be different in size.

A single track  $x$  as shown will suffice for comfortably charging the different compartments  $w$   $w^1$   $w^2$  of the hopper. Assuming the hopper  $a$  to occupy its position shown at Fig. 2, it is obvious, that the compartment  $w^1$  can be charged from a truck on the track  $x$  and the compartment  $w^2$  can be charged from another truck on the same track  $x$ , the two trucks being pushed together or shifted one after the other, as the case may be. When it is desired to charge the third compartment  $w$ , all that is required is to merely turn the lock  $u$  out of engagement with the respective projection  $v$  and to permit the hopper  $a$  to be taken along with the rotating bottom  $e$ , until the lock  $v$  is turned back for engaging between the two other projections  $v^1$ , when the hopper  $a$  will stop and its compartment  $w$  can be readily charged from a third truck on the track  $x$ .

During the rotation of the shaft  $c$  the three bent knives  $b$   $b$  will cut through the materials in the compartments and press portions of them on the bottom  $e$ , so that they can be discharged in the manner described above. Any larger stone which may be in the materials will be easily pushed by the knife  $b$  along the oppositely bent internal scraper arm  $i$  or  $n$  or  $i^1$  or  $n^1$  until it passes through the respective opening  $k$  or  $k^1$ . Such stones are not likely to be jammed.

Obviously the operation of the apparatus need not be stopped when changing from any one of its compartments to another one to be charged from the track  $x$ .

The charger described may be varied without departing from the spirit of my invention.

I claim:

1. In a charger for ceramic materials, the combination with a hopper of circular section having a plurality of openings in its lower periphery, of a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, partitions in said hopper for dividing it into compartments, and a stationary scraper forming the external continuation of one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom.

2. In a charger for ceramic materials, the combination with a frame, of a hopper of circular section mounted in said frame to turn and having a plurality of openings in its lower periphery, means for locking and releasing said hopper, a rotatory bottom of a

larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, partitions in said hopper for dividing it into compartments, and a stationary scraper forming the external continuation of any one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom.

3. In a charger for ceramic materials, the combination with a hopper of circular section having a plurality of openings in its lower periphery, of a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, a plurality of adjustable partitions in said hopper for dividing it into compartments, and a stationary scraper forming the external continuation of one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom.

4. In a charger for ceramic materials, the combination with a frame, of a hopper of circular section mounted in said frame to turn and having a plurality of openings in its lower periphery, means for locking and releasing said hopper, a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, a plurality of adjustable partitions in said hopper for dividing it into compartments, and a stationary scraper forming the external continuation of any one of said scrapers and adapted to sweep the external annular portion of said rotary bottom.

5. In a charger for ceramic materials, the combination with a hopper of circular section having a plurality of openings in its lower periphery, of means for varying the area of the openings of said hopper, a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, partitions in said hopper for dividing it into compart-



ments, and a stationary scraper forming the external continuation of one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom.

5 6. In a charger for ceramic materials, the combination with a frame, of a hopper of circular section mounted in said frame to turn and having a plurality of openings in its lower periphery, means for varying the area  
10 of the openings of said hopper, means for locking and releasing said hopper, a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent  
15 in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives,  
20 partitions in said hopper for dividing it into compartments, and a stationary scraper forming the external continuation of any one of said scrapers and adapted to sweep the external annular portion of said rotary  
25 bottom.

7. In a charger for ceramic materials, the combination with a hopper of circular section having a plurality of openings in its lower periphery, of means for varying the area of  
30 the openings of said hopper, a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory  
35 bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, a plurality of adjustable partitions in said hopper for di-  
40 viding it into compartments, and a stationary scraper forming the external continuation of one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom.

45 8. In a charger for ceramic materials, the combination with a frame, of a hopper of circular section mounted in said frame to turn and having a plurality of openings in its lower periphery, means for locking and re-  
50 leasing said hopper, a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom,  
55 rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and

said rotatory knives, partitions in said hopper for dividing it into compartments, an external scraper forming the continuation of any  
60 one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom, and means for securing said external scraper.

9. In a charger for ceramic materials, the  
65 combination with a frame, of a hopper of circular section mounted in said frame to turn and having a plurality of openings in its lower periphery, means for locking and re-  
70 leasing said hopper, a rotatory bottom of a larger diameter beneath said hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one di-  
75 rection and adapted to sweep said rotatory bottom, rotatory knives oppositely bent to said scrapers and adapted to work together with them, means for driving said rotatory  
80 bottom and said rotatory knives, a plurality of adjustable partitions in said hopper for dividing it into compartments, an external scraper forming the continuation of any one of  
85 said scrapers and adapted to sweep the external annular portion of said rotatory bottom, and means for securing said external scraper.

10. In a charger for ceramic materials, the combination with a frame, of a hopper of circular section mounted in said frame to turn and having a plurality of openings in its  
90 lower periphery, means for varying the area of the openings of said hopper, means for locking and releasing said hopper, a rotatory bottom of a larger diameter beneath said  
95 hopper, a plurality of scrapers fastened in said hopper adjoining its openings and bent in one direction and adapted to sweep said rotatory bottom, rotatory knives oppositely  
100 bent to said scrapers and adapted to work together with them, means for driving said rotatory bottom and said rotatory knives, partitions in said hopper for dividing it into  
105 compartments, an external scraper forming the continuation of any one of said scrapers and adapted to sweep the external annular portion of said rotatory bottom, and means for securing said external scraper.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN GIELOW.

Witnesses:

PAUL ARRAS,  
CLARE SIMON.