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[illegible]

Fig. 2. A detailed cross-sectional view of a mechanical device, likely a safe or vault door, showing internal components and structural elements. The diagram includes various labeled parts: *a*, *a¹*, *a²*, *a³*, *b*, *c*, *c'*, *d*, *f*, *f¹*, *g*, *h*, *i*, *j*, *k*, *l*, *m*, *n*, *p*, *q*, *r*, *s*, *t*, *u*, *v*, *w*, *x*, *y*, *z*, *aa'*, *bb'*, *cc'*, *dd'*, *ee'*, *ff'*, *gg'*, *hh'*, *ii'*, *jj'*, *kk'*, *ll'*, *mm'*, *nn'*, *oo'*, *pp'*, *qq'*, *rr'*, *ss'*, *tt'*, *uu'*, *vv'*, *ww'*, *xx'*, *yy'*, *zz'*. The device features a heavy door with a locking mechanism, including a handle, a bolt, and a spring. The internal structure shows multiple layers and compartments, with a central area labeled *g* containing a mechanical assembly. The door is shown in an open position, revealing the internal components.

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MACHINE FOR CARBONIZING, SHAKING, MIXING, OR SIMILARLY TREATING RAGS
AND OTHER MATERIALS.

964,011.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed July 21, 1909. Serial No. 508,879.

To all whom it may concern:

Be it known that I, JAMES FITTON, a subject of King Edward VII of Great Britain, residing at Ossett, in the county of York, England, have invented certain new and useful Improvements in or Connected With Machines for Carbonizing, Shaking, Mixing, or Similarly Treating Rags and other Materials, of which the following is a specification.

My invention relates to machines for carbonizing, shaking, mixing or similarly treating rags and other fibrous materials, of the type comprising a rotary cylinder or cage into which the rags or materials to be carbonized are placed and subjected to the action of the gases admitted into the cage as it revolves, or in which they are shaken or mixed.

My improvements in this class of machine consist in providing novel means whereby full supplies of rags or material can be quickly placed into and removed from the machine, the object of my invention being to avoid the exposure of the attendants to the gases during such operations, to considerably reduce the time and labor required to charge and discharge the machine, and by the rapidity with which the machine can be charged and emptied, minimize the loss of heat from the machine while it is open and also the reduction of the temperature of the rags or material in their conveyance from the drying room into the machine.

One embodiment of the present improvements is illustrated in the accompanying drawings in which:—

Figure 1 is a side elevation of a carbonizing machine illustrating my improvements, the surrounding inclosing brickwork chamber and driving mechanism common to such machines, being omitted, and Fig. 2 is a front view (as in the direction of the arrow A Fig. 1) of the carbonizing cylinder or cage with its supporting means.

Referring to the drawings, letter *a* represents the cylinder or cage, which is provided in the usual manner with hollow trunnions or pivots *b, b* for the admission of the gases by means of which carbonization of the material in the cage or cylinder is effected. The means for transmitting rotary motion to the cylinder and the external inclosing chamber

being ordinary and well known, I have not deemed it necessary to show the same.

For the purpose of my invention, I construct the cage or cylinder *a* with one section of the circumference thereof cut away or left open, and on the lower portions of the side plates *a', a'* of the cylinder I form or attach transverse brackets or bars *c, c* on which are attached rails *d, d* projecting at each end a little beyond the end plates *a', a'*. In alignment with the rails *d, d* are rails *e*, secured to the floor of the machine and leading from the machine preferably to the drying room or, it may be, to any other point desired.

Adapted to fit into and fill up or close the open section of the cage or cylinder *a* to complete the same and close it up as an ordinary cage or cylinder, is a loose receptacle or wagon *f* provided with wheels or bowls *f', f'* which are adapted to rest on the rails *d, d* on the transverse brackets *c, c* and support the said wagon *f* in position in the cylinder.

The wagon *f* is of sufficient capacity to hold a full supply of rags or material to be carbonized at one operation, and it is charged therewith in the drying room or away from the carbonizing machine and then wheeled over the lines of rails *e*, direct on to the lines of rails *d, d* carried from the end plates of the cage, thus at once charging the said cage and sealing it up ready for the carbonizing operation. When wheeled home into position the inner end of the wagon *f* abuts against a wall or stop plate *g* toward the rear of the cage, in which position the said wagon is retained or held by means of the sliding bars or bolts *h, h* supported on the front of the wagon, the ends of said bars being adapted to enter holes or recesses *a²* in the end plates *a', a'*. The bars *h, h* are pivoted at their inner ends to opposite ends of a short rocking lever *i* pivoted to the wagon front and operated by means of a handle *j*. A spring *k* pulls on the said handle and serves to hold the ends of the bars *h, h* in the recesses or openings *a²* in the end plates, whereby the wagon is safely held in position while the machine is working. At the upper portion of the entrance opening to the cylinder is a stay or inclined plate *g'* extending over the front end of the wagon when pushed fully home to guide the

rags or material into same during the revolution of the cage, and, in conjunction with a lip f^2 on the front end of the wagon at its upper side, form a closure for preventing undue escape of the gases from the cylinder. The upper edges of the sides of the wagon are adapted to engage with shoulders or angle plates a^3 , a^3 bolted to the side plates a' , a' to assist in holding the said wagon in position.

The wagon revolves bodily with the cage a , the material therein being distributed over the cage in the usual way and prevented from rolling *en masse* by means of forks l , l , bent or inclined to a suitable angle as shown, two sets of such forks being employed in this instance. If desired one or more sets of such forks may be secured in the detachable section or wagon f , but so far I have not found this necessary. The cage rotates during the process of carbonizing in the direction of the arrow B, Fig. 1. When the carbonizing process is completed, instead of having to remove the contents from the cage by hand as heretofore, the attendant by operating the handle j releases the wagon f forming part of the cage and draws the said wagon away therefrom along the rails d , d , e , to a point clear of the gases in the machine, where it can be emptied without inconvenience or injury to the workpeople.

In order to bring the rags or material in the cage or cylinder to a position to empty into the wagon on completion of the carbonizing process, the cage is partially revolved in a reverse direction, that is to say, in the direction of the arrow C, Fig. 1, to permit of the rags or material falling by gravity off the forks into the wagon or detachable section, the angular position of the forks insuring the deposit of the rags in the wagon.

A balance plate m is provided to counter-balance the weight of the wagon and other applied parts.

By providing a cage or cylinder having a detachable section or segment which can be filled and emptied away from the cage itself, I avoid the disadvantage of working in the fumes from the machine, while a considerable reduction in the time and labor required to charge and empty the machine is also effected. The rapidity with which the machine can be charged and emptied has the further advantage that very little heat is allowed to escape from the machine and the rags or material can be conveyed from the drying room and placed in the machine with very little drop in temperature, whereby the carbonization of successive quantities of rags or material is not delayed by the loss of heat which now takes place at each emptying and re-charging of the machine.

It will be understood that I may provide any suitable means for securing the wagon

or detachable section in position instead of or in addition to the means herein set forth, and also that the cylinder or cage may be of any suitable shape and size, the shape of the wagon being made to suit the shape of the cage.

After the carbonizing process, the wagon containing the carbonized rags or materials is preferably conveyed to a second machine similar to the machine already described with the exception that no gases are admitted thereto, the revolution of the cage and wagon shaking or disturbing the rags or materials and allowing the gases still contained therein to escape and the rags to cool. The peripheral surface of the cage is in this instance perforated or reticulated to admit of the passage of the gases into the outer chamber.

The machine as described and shown on the drawings is adapted to be used for oiling or mixing rags or material, the only difference in the use of the machine for such purposes being the omission of the gases from the cylinder or cage.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. The combination, with a revoluble drying cylinder having an opening in one side of its periphery, of a removable receptacle for the material to be treated supported within the said cylinder on one side of its axis and closing its said opening.

2. The combination, with a revoluble drying cylinder having an opening in one side of its periphery, of supports secured to the cylinder and extending parallel with its axis across the said opening, rails secured to the said supports crosswise of the axis of the cylinder, and a receptacle for the material to be treated arranged on the said rails and fitting within the said cylinder on one side of its axis and closing its said opening.

3. The combination, with a revoluble drying cylinder having an opening in one side of its periphery, a stop-plate secured within the cylinder at one end of the said opening, and a guide-plate secured within the cylinder over the other end of the said opening; of a receptacle for the material to be treated secured within the cylinder on one side of its axis and bearing against the said plates and closing the said opening.

4. In a machine of the type described, the combination, with a revoluble cage or cylinder having a segmental opening in its periphery, of series of angularly arranged or bent forks secured to its inner walls, brackets or carriers secured at each end to the sides of the cage or cylinder and extending transversely across same to support or carry lines of rails, the said lines of rails, a wheeled wagon or detachable section adapted to rest

on said lines of rails, means for securing the
said wagon in position when pushed fully
home within the cage or cylinder, and lines
of rails external of the cage or cylinder and
5 in alinement with the lines of rails carried by
the cage or cylinder so that on release of the
wagon it can be wheeled clear of the ma-
chine for discharging the rags and a wagon

fully charged with a fresh supply of rags
wheeled into position in the machine. 10

In testimony whereof I affix my signature
in the presence of two witnesses.

JAMES FITTON.

Witnesses:

FRED HAMMOND,
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