The machine herein claimed avoids this grave drawback of destroying the fibers which may arise reasonably separated within said machine and provides a better and more rational treatment of the bunches, which are subjected to a reiterated, and more violent action—aiming at their dismembering—that fibers already reasonably separated.

The object of the present invention is exemplified in the attached drawing wherein the only figure illustrates in vertical cross section the machine for treating fibers, provided by the present invention.

The drawing shows that said machine comprises a receptacle 1, having the shape of a truncated cone and mounted on a vertical axis 2 which may be rotated in any appropriate manner. The bottom of said receptacle should preferably have a central conical part 3.

On the inside of the walls of cone 1 there are provided staggered projections 4 which lie along horizontal, vertical and/or oblique rows. From over the shaft of the receptacle 1 up to a point a little above the internal cone 3 there descends a vertical tube 5 for the introduction of the asbestos and adjacent the lower flanged rim 6 of said tube 5 is attached a sheet metal cone 7 conveniently attached to tube 5 and having preferably a greater center angle than the receptacle 1, as clearly shown in the drawing.

This internal conical skirt 7 presents all along its perimeter horizontal slots or orifices 8, preferably in staggered formation, which reach up to the upper rim of same, and beater members 9 made of steel bars. Within said skirt 7, at a certain point of same, there is provided a hopper 10 ending at the top in one or more suction tubes 11 connected with the discharge conduit 12.

The machine is completed by a fixed cover 13 having an opening 14 for the exit of litter such as stones which may have entered the machine in mixture with the asbestos.

The drawing shows that only receptacle 1 is rotatable, tube 5 and the internal perforated skirt 7 being thus fixed; however the assembly of the tube 5 with the skirt 7 may obviously rotate, preferably in the opposite sense as regards receptacle 1; this will require very simple alterations, such as the absence or reduction of the attachment members between the perforated skirt 7 and tube 5, and a lack of engagement between hopper 10 and said skirt 7.

The operation of the machine is very simple and efficient, as described below.

After the machine is put in operation, the material to be treated is introduced vertically therein—same being, for instance, asbestos fibers and chunks of same—through the vertical tube 5, said fibers and bundles thus falling on top of lower cone 3 which gives them a rotational movement.

Under the action of centrifugal force said chunks of fiber tend to rise along the inclined wall 1, this tendency being proportional to the volume of said chunks and thus to their weight and specific gravity. During this rise said fiber chunks impinge upon the successive staggered projections 4, until they are satisfactorily dismembered by such successive impacts and by the shocks received from their engagement with beaters 9, the violence of the latter obviously increasing from bottom to top in view of the increase of the centrifugal force.

The separated and isolated fibers, being lighter, begin thus to whirl within the machine and when they come near the collecting hopper 10 they are sucked in by the air current, passing through the orifices or slots 8 of the internal skirt 7, to be thus removed from the apparatus along tube 11.

Since the number of projections increases upwards, and
so does the peripheral speed of the fiber chunks, the
chunks that may have escaped the action of the lower
projections are bound to be subject to even greater im-
4
pacts, thus ensuring final disruption of said chunks. On
the other hand, the fibers already released, since they
are whirled within the receptacle and end by passing
through said slots 8, do not suffer any excessive damage
or comminution, as is the case with present conventional
machines. Stones and other heavy matter, which cannot
10 be reduced in size or sucked by hopper 10, finally reach
upper opening 14 through which they are at last expelled
from the machine.

It will thus be seen that this novel machine executes
a truly differential treatment on the fibers, said treatment
15 being obtained by means of an adequate arrangement of
the projections 4, of said beaters 9 and of said slots 8.

Thus, the fibers are only sucked in by the hopper 10,
when they are indeed ready for use, and a final product
is thus obtained completely exempt from chunks of fibers
yet to be dismembered. Regulation of the machine can
20 be carried out by varying the rotational speed of the ex-
ternal receptacle 1 and/or of the internal skirt 7, or by
varying the amount of air sucked along tube 11. The
operation of the machine may also be regulated by clos-
ing some of the suction orifices 8, by removal of some
25 of the beater members 9 and finally by substituting a cone
with a different central angle for the internal cone 7.

As a new embodiment or different use, the machine
provided by the present invention may also be built with-
out the internal projections 4 and the beaters 9, having
30 instead, two or more suction hoppers at different heights
or elevations, in order to be of use in the separation of
fibers having different weights or specific gravities, the
necessary modifications being easily understandable.

We claim:
1. Improvements in machines for treating fibers, espe-
cially asbestos fibers, by the joint action of impacts and
centrifugal force, comprising a rotating receptacle hav-
ing the shape of a truncated cone mounted on a vertical axis
with its larger base turned upwards; an internal metal
perforated hollow conical skirt mounted coaxially with
respect to said receptacle, the walls of said skirt and
receptacle converging upwardly towards each other and
having relative movement therebetween; delivery means
for introducing material to be treated centrally to the
bottom of said receptacle; and suction-operated collection
means communicating with the interior of said skirt for
withdrawing treated material therefrom.
2. Improvements in machines for treating fibers, ac-
cording to claim 1, wherein the bottom of said receptacle
is of upwardly pointed conical formation and in which
said delivery means comprises a downwardly opening duct
 coaxial with said receptacle for discharging said material
to be treated upon the apex of said conical bottom.
3. Improvements in machines for treating fibers, ac-
cording to claim 1, wherein said internal skirt is provided
with outwardly projecting beater bars.

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