

No. 682,168.

Patented Sept. 10, 1901.

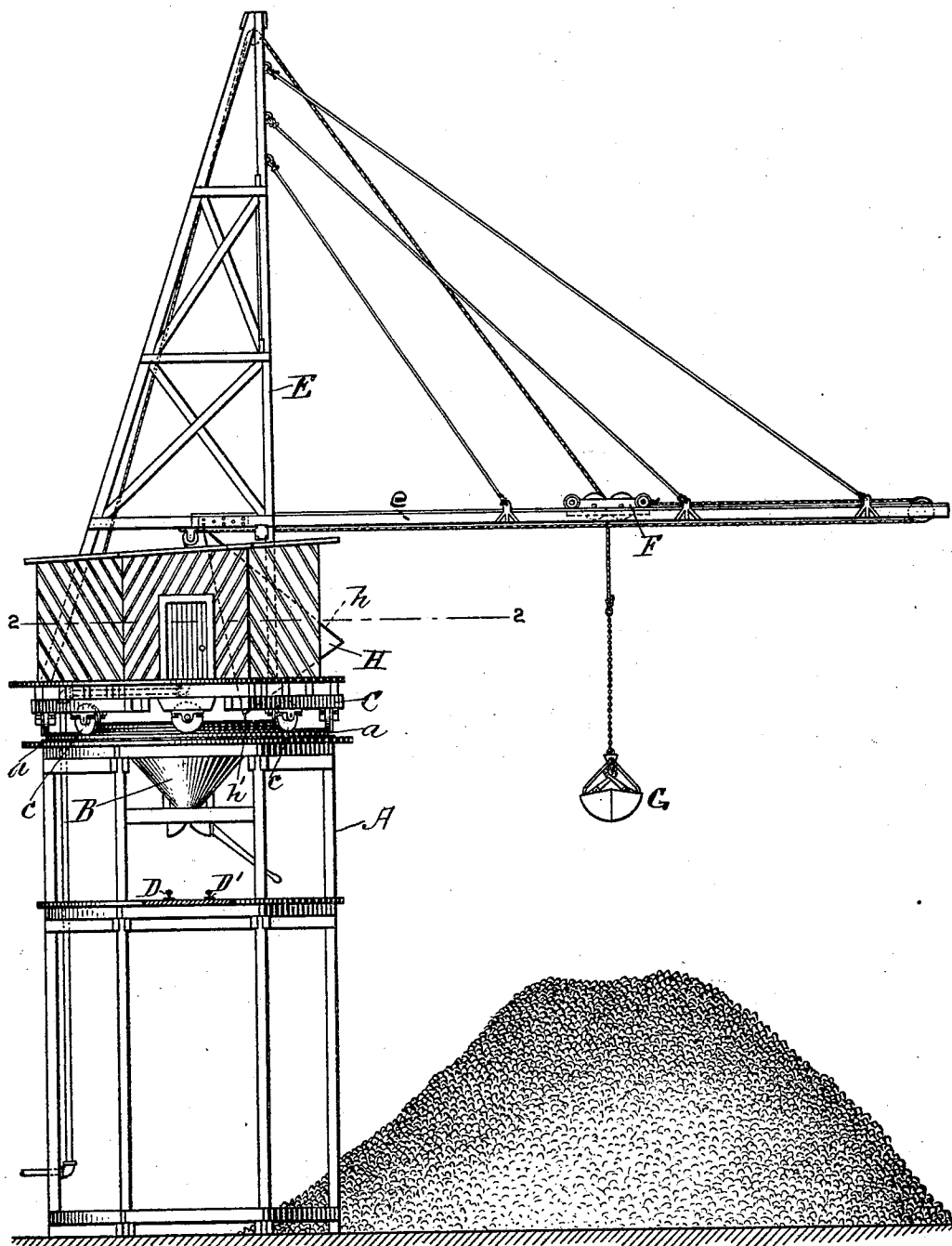
J. CAMPBELL.

APPARATUS FOR HANDLING COAL OR OTHER MATERIAL.

(Application filed Nov. 18, 1900.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

J. M. Dolan
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FIG. 1.

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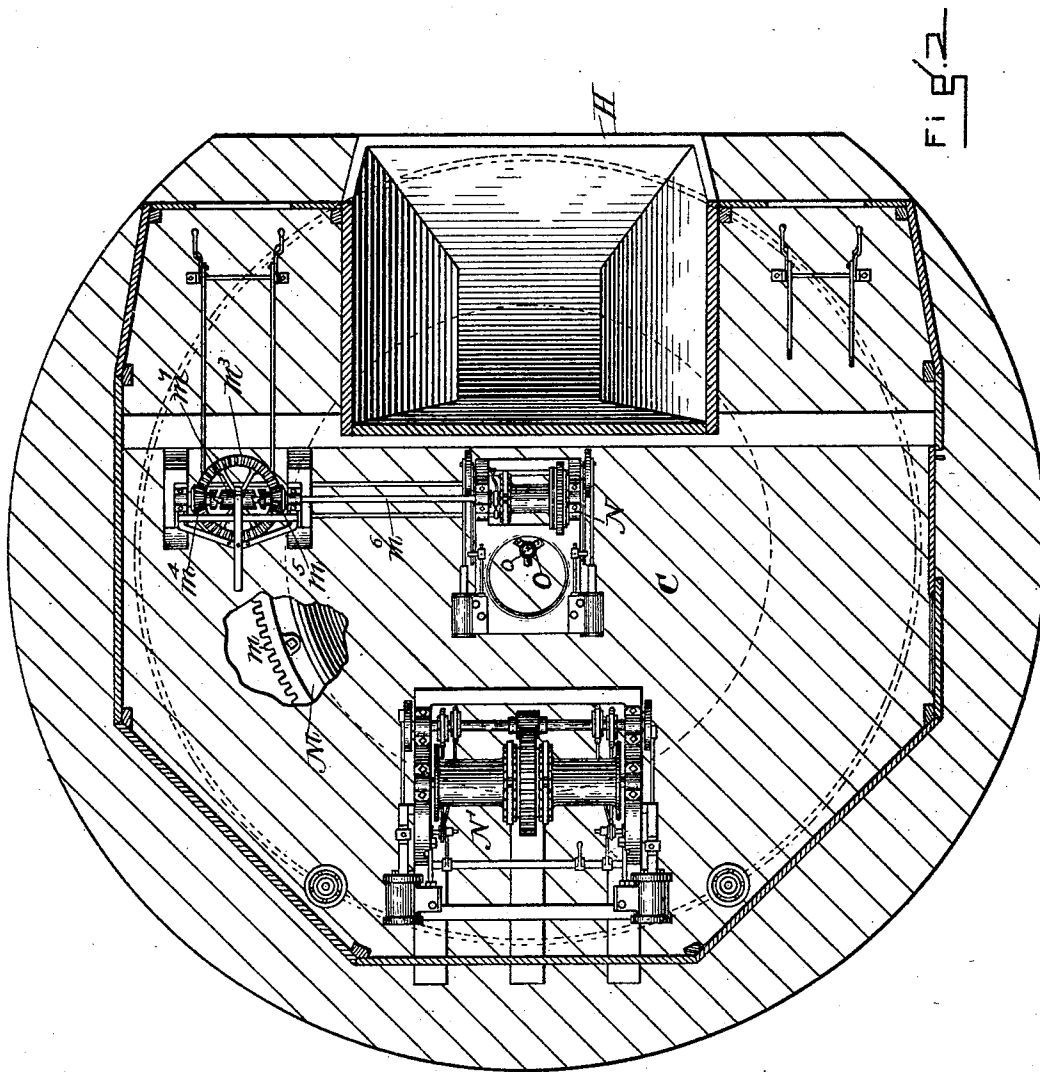
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4 Sheets—Sheet 2.



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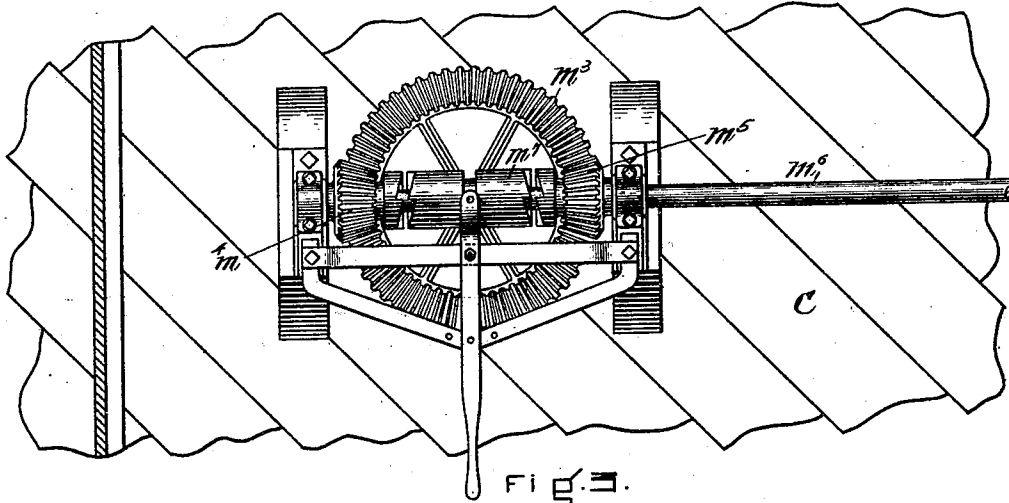


Fig. 3.

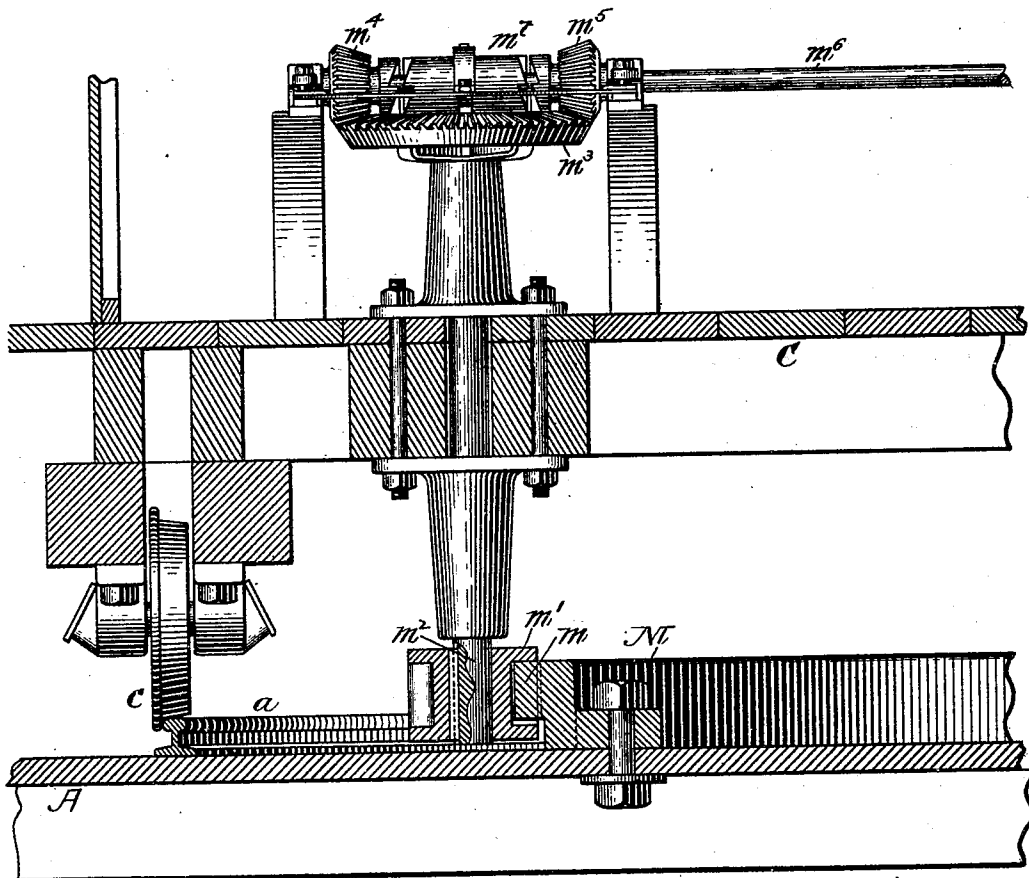


Fig. 4.

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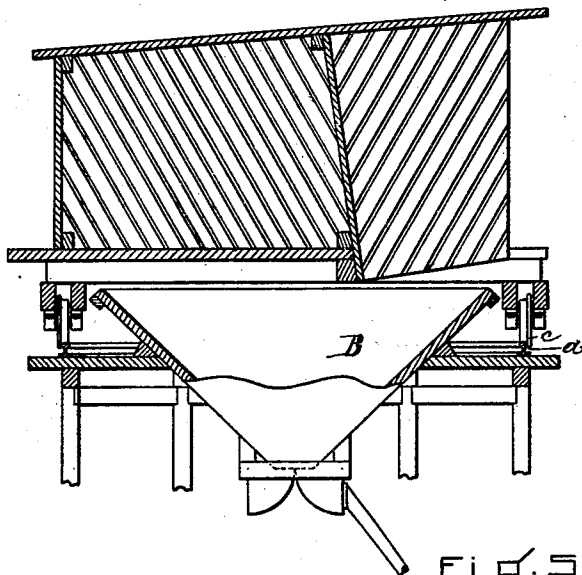
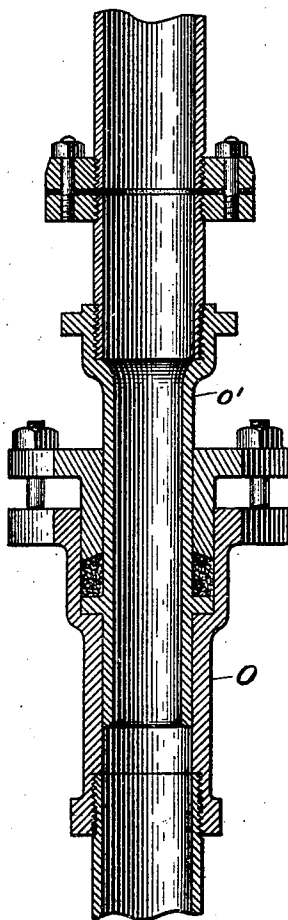
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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HANDLING COAL OR OTHER MATERIAL.

SPECIFICATION forming part of Letters Patent No. 682,168, dated September 10, 1901.

Application filed November 16, 1900. Serial No. 36,690. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH CAMPBELL, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Apparatus for Handling Coal or other Material, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to an apparatus for handling coal and other material arranged to transfer coal or material from any position or number of positions upon one or more sides of a central receiving point or station to said central point or station.

It comprises a stationary frame or stand upon which is mounted a stationary hopper or chute, preferably centrally arranged and shaped to receive coal or material discharged into it from any radial position and to deliver the coal or material so received through its bottom to tram or other cars, carts, lighters, barges, or any other means of conveyance or to a pile. Upon this frame or stand there is mounted a truck in a manner to make a complete horizontal revolution thereon, if desired, or as much of a horizontal revolution as may be required, and this truck supports a tower having an outwardly-extending boom carrying a horizontally-moving grab or shovel-controlling trolley, a grab or shovel, and the engine or means for operating the trolley, the grab, or shovel and for turning the truck.

Referring to the drawings, Figure 1 is a view in side elevation, representing the apparatus as a whole and showing the relation which it bears to a pile of material at one side of the delivery-point or center. Fig. 2 is a view in horizontal section upon the line 2 2 of Fig. 1, enlarged, and in plan of parts below said line. Figs. 3 and 4 are detail views, much enlarged, of portions of the mechanism for rotating the truck. Fig. 5 is detail view illustrating a modified form of hopper, to which reference is hereinafter made. Fig. 6 is a view, enlarged, of the steam-pipe connection with the engine, which is hereinafter described.

I will now describe the invention in detail

in connection with the drawings, wherein A represents a stationary framework or stand for holding in a more or less elevated position the stationary hopper B and the circular track *a* for the rolls or wheels *c* of the truck C. The hopper B has the shape of an inverted hollow cone, the upper end of which is open and centrally disposed with respect to the circular track *a*. Its lower end is adapted to be opened and closed in any desired way and occupies a delivery position over the place into which the vehicle for receiving the coal or other material may be moved or the material is to be dumped.

In the drawings I have represented below the hopper and supported by the frame or stand the rails D D', upon which tram or other cars may be successively moved into receiving position beneath the hopper. Of course the coal or other material may be delivered to carts or to any other means for moving or conveying it adapted to be brought under the lower end of the hopper. The truck C has mounted upon it the tower E, from one side of which extends the boom *e*. This is of ordinary construction and supported by the tower in the usual way and carries the trolley F, which is mounted thereon to be movable lengthwise it and operated by the engine in the customary manner. G is a grab or shovel. It is raised and lowered and closed and opened as is usual and is transferred horizontally by the trolley. The engine for operating the trolley-rope and the ropes of the grab or shovel is mounted upon the truck C. The truck also supports the hopper H. It is arranged at the inner end of the boom *e* and has an inclined upper opening *h*, so presented as to permit the grab or shovel to be readily moved to a discharging position over it. It also has its lower or delivery end *h'* arranged over the top of the stationary hopper B, so that the coal or material discharged into it from the shovel or grab is delivered to the hopper B. The tower, boom, trolley, grab, hopper H, and engine are all movable together on arcs of a horizontal plane, the center of movement or rotation being the center of the truck C, and the apparatus has the large range for transferring coal or other material which its organization implies, as it can take the coal or material from

any position upon one side of the stand and deliver it through the center of the truck or to a position upon some other side of the stand—that is, it can either deliver from a position upon any side of the stand or upon any number of sides of the stand to the center of the truck, or it may transfer the coal or material from one position on one side of the stand to a position upon another side thereof. This permits the economical storing of large quantities of coal or other material by a single handling or delivery apparatus and is a very desirable device for use where the facilities for handling large quantities of coal or other material are restricted.

The apparatus may be turned upon its stand or support by hand or by power. I have represented in Figs. 2, 3, and 4 means for turning it by power, and they comprise a stationary wheel M, (see Fig. 4,) mounted on the stand or support A within the track a , having teeth m , with which a pinion m' engages. This pinion is mounted at the lower end of a shaft m^2 , carried by the truck C, and the shaft is turned in one direction or the other by a bevel-gear m^3 , made fast to its upper end, the bevel-gears $m^4 m^5$ on the driving-shaft m^6 , and the clutch m^7 . The clutch is fast to the shaft m^6 and turns therewith. It is also lengthwise movable upon it and engages, when moved in one direction, a clutch of the bevel-gear m^4 and when moved in the other direction the clutch of the bevel-gear m^5 . When the clutch m^7 is engaged with the bevel-gear m^4 , the truck is caused to be turned in one direction, and when it is engaged with the bevel-gear m^5 the truck is caused to be turned in the reverse direction, and when the clutch is disengaged from both bevel-gears the truck remains stationary.

It is not necessary to describe the engine for turning the driving-shaft m^6 or for reversing its rotation and for moving the trolley F. Such engine is represented at N and is mounted on the truck. Neither is it necessary to describe the engine N' for hoisting and lowering and closing and opening the grab or shovel G. One engine may be used in lieu of two.

The boiler for the engines may be mounted upon the truck to be turned with the engines, or they may be located elsewhere, in which case the steam-supply pipe O for the engines will pass through a hole o in the center of the truck-floor (see Fig. 2) and will be connected with the engines by a pipe connection o' , which swivels upon the end of the pipe O. (See Fig. 6.)

In Fig. 5 I have represented a modification in which the hopper H is dispensed with. This is accomplished by extending the hopper B upward and outward sufficiently to permit the grab to be moved within its edge, and thus dump its load directly into it.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an apparatus for handling coal and other material, the combination of a stand or support, a hopper mounted upon said stand or support, a circular track upon said stand or support, a truck mounted upon said circular track to be turned thereon, a hopper carried thereby adapted to receive material in any position to which the truck is turned and to deliver it to the stationary hopper, a radiating trolley-supporting boom and means for sustaining it mounted upon the truck, a trolley movable lengthwise the boom, a grab or shovel movable toward and from the stand or support by the trolley, and means for moving the grab or shovel vertically and for closing and opening the same, as and for the purposes set forth.

2. The combination in an apparatus for handling coal or other material, of a stand or support, a curved track upon said stand or support, a truck mounted upon said curved track, a receiving and delivery hopper mounted upon said truck, a tower mounted upon said truck, a boom extending horizontally therefrom and supported wholly thereby, a trolley mounted on said boom, a grab or shovel and means for moving the trolley and operating the grab or shovel, the said boom, trolley, grab or shovel, and hopper being movable together upon an arc from one position to another.

3. The combination in an apparatus for handling coal or other material of a stand or support, a circular track mounted thereon, a stationary hopper on said stand, a truck mounted upon the track to be movable thereon, a tower carried by the truck, a horizontal boom extending from the tower, a trolley movable upon the boom, a grab or shovel, a hopper upon the truck near the inner end of the boom, and operating devices carried by the truck connected with the trolley and with the grab or shovel to move the trolley and operate the grab or shovel.

4. The combination in an apparatus for handling coal or other material of a stand or support, a circular track mounted thereon, a stationary hopper, a truck mounted upon the track to be movable thereon, a tower carried by the truck, a horizontal boom extending from the tower, a trolley movable upon the boom, a grab or shovel, a hopper upon the truck near the inner end of the boom, and operating devices carried by the truck connected with the trolley and with the grab or shovel to move the trolley and operate the grab or shovel, the said devices being also connected with the truck to move the same.

5. In an apparatus for handling coal or other material, a stand or support, a hopper and a curved track mounted thereon, a truck mounted upon the curved track to be movable upon it, a tower carried by the truck, a horizontal boom extending from the tower and supported thereby, a trolley movable upon the boom, a grab or shovel and a hopper

mounted upon the stand or support and bearing operative relation to the boom and grab or shovel.

6. The combination in an apparatus for
5 handling coal or other material of a stand or support, a hopper and a curved track mounted thereon, a truck mounted upon the track to be movable upon it, a tower carried by the truck, a horizontal boom extending from the
10 tower and supported thereby, a trolley movable upon the boom and a grab or shovel vertically movable with respect to the trolley and horizontally movable with it, all constructed to provide means for the delivery
15 or the handling of coal or other material upon a radius and upon an arc.

7. The combination in an apparatus for handling coal or other material of a stand

or support carrying a stationary hopper, a curved track mounted upon said stand or
20 support above said hopper, a truck mounted upon said hopper to be movable upon it, and coal or material handling devices mounted upon said truck to be movable therewith in a curved path, and also to be movable ra-
25 dially with relation thereto, and a hopper mounted on said truck near its outer edge adapted to receive the contents of said coal or material handling devices and deliver them to said stationary hopper, as and for the pur-
30 poses described.

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Witnesses:

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