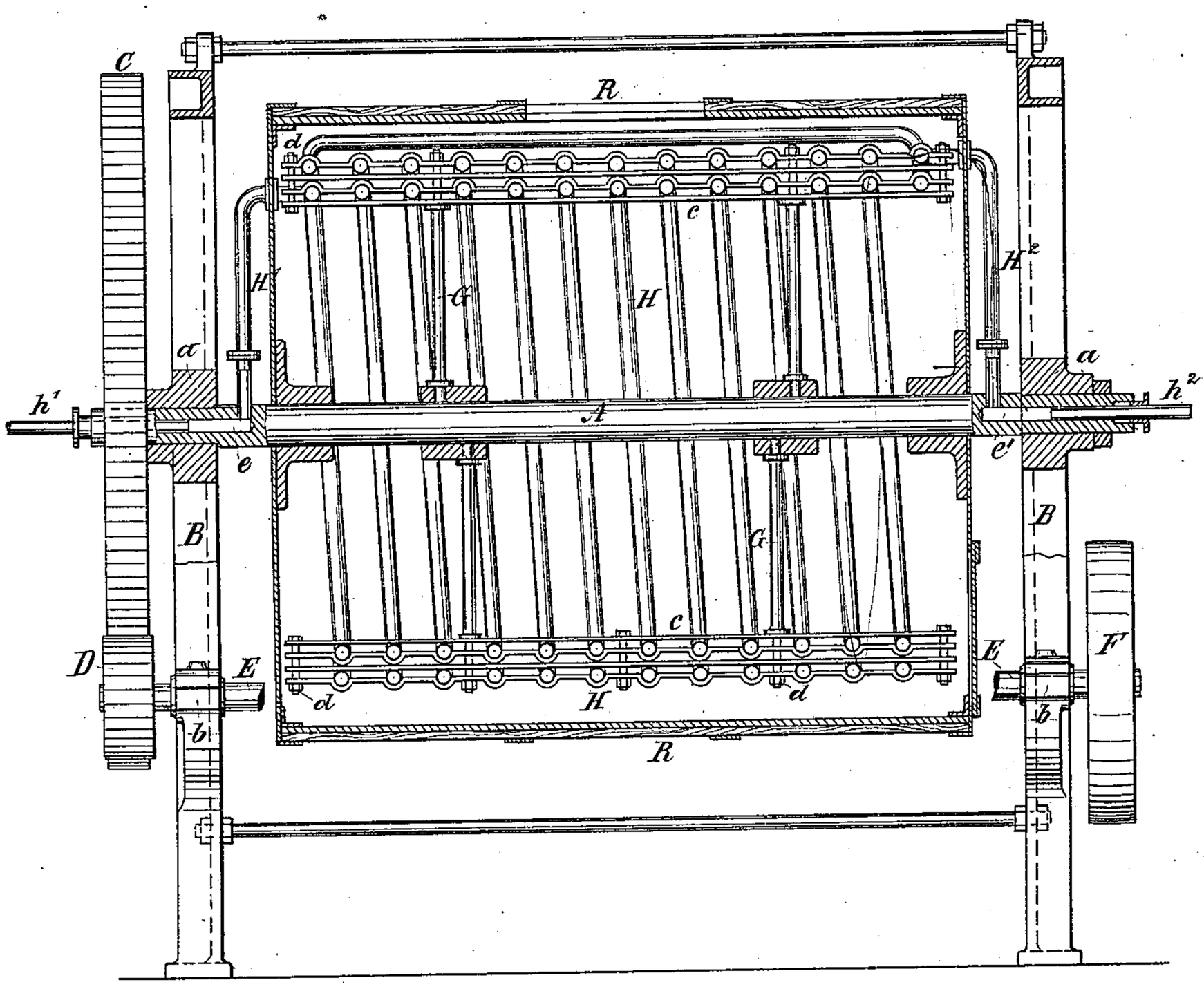
(No Model.) 2 Sheets—Sheet 1.

H. STOLLWERCK.

COCOA ROASTER.

No. 308,529. Patented Nov. 25, 1884.

Fig. 1.



Witnesses.

Chas. F. Myers

Robert Everett.

Inventor.

Heinrich Stollwerck.

By James L. Norris

Atty.

(No Model.)

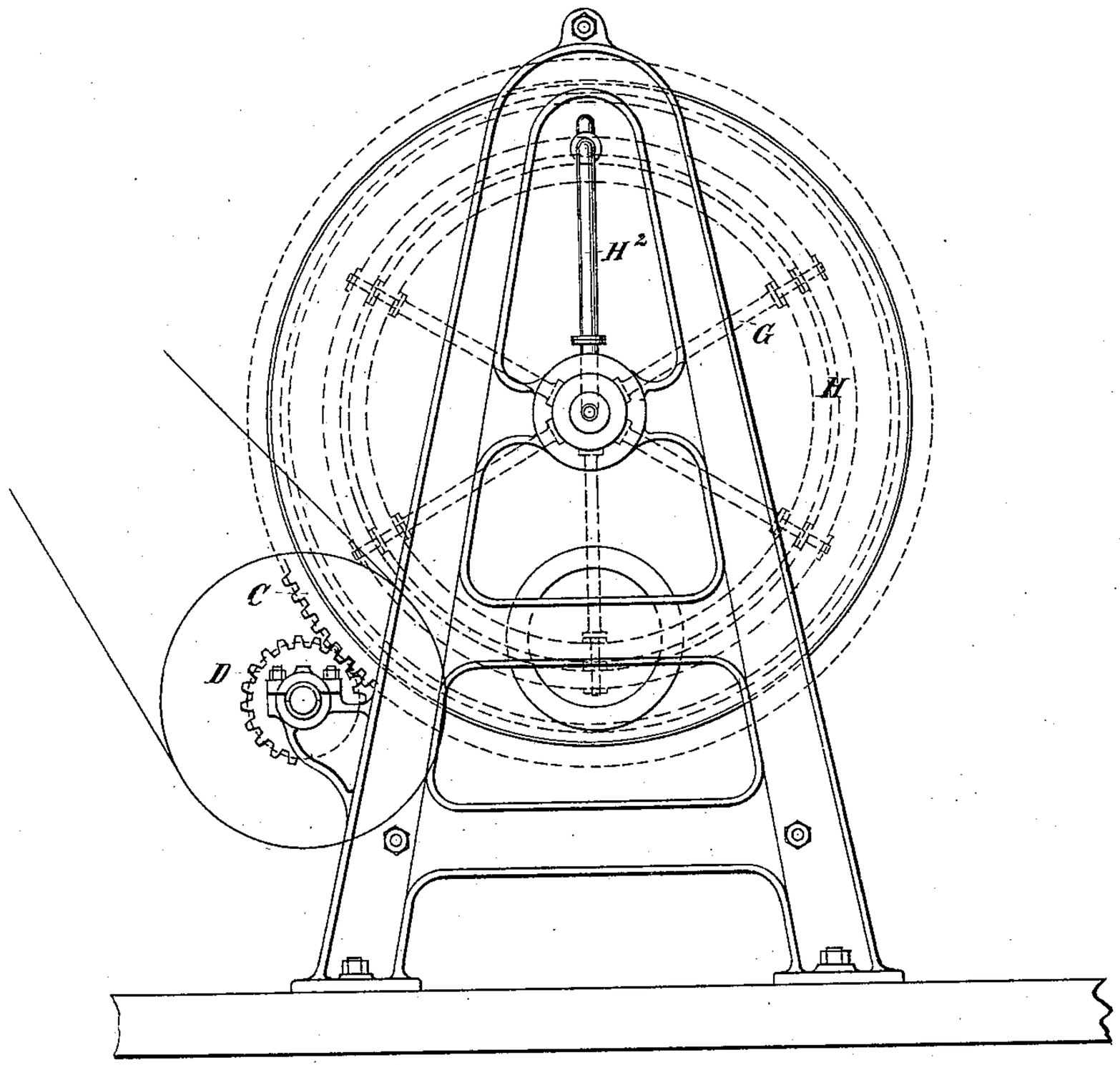
2 Sheets—Sheet 2.

H. STOLLWERCK.

COCOA ROASTER.

No. 308,529. Patented Nov. 25, 1884.

Fig. 2.



Witnesses.

Chas. F. Dyer.

Robert Everett.

Inventor.

Heinrich Stollwerck.

By James L. Norris.

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UNITED STATES PATENT OFFICE.

HEINRICH STOLLWERCK, OF COLOGNE-ON-THE-RHINE, PRUSSIA, GERMANY, ASSIGNOR TO GEBR. STOLLWERCK, OF SAME PLACE.

COCOA-ROASTER.

SPECIFICATION forming part of Letters Patent No. 308,529, dated November 25, 1884.

Application filed January 30, 1884. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH STOLLWERCK, of the city of Cologne-on-the-Rhine, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Cocoa-Roasters, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to steam-roasting apparatus, and has for its object to provide a novel machine more especially designed for roasting cocoa-beans; and the said invention consists in the construction and combination of devices, which will be fully hereinafter described and claimed.

To enable other skilled in the art to better understand the nature of my invention, I will now proceed to describe the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improved roasting apparatus or cocoa-roaster, while Fig. 2 is an end view of the same.

A is the main shaft, suitably journaled at *a a* in the frame B, and carrying the roasting-drum R, of cylindrical, spherical, rectangular, or any other convenient form, rigidly applied thereto, so as to revolve with the shaft. The drum is closed at all points, but is provided with a movable part or door, by which to gain access to the interior for introducing and removing the material to be roasted.

C is a spur-wheel fixed upon one end of the shaft A, and gearing with another spur-pinion, D, upon the driving-shaft E, which is also properly journaled in the frame B at *b b*. The driving-shaft E may either be provided with a pulley, F, as shown in the drawings, so as to have rotary motion imparted to it by means of a belt and some suitable motor, or it may carry a crank and handle and be turned by hand or by means of a pitman and treadle.

Within the drum R the shaft A is provided with the radial arms or spokes G, said arms or spokes being rigidly applied to the shaft A either by means of sleeves, as shown in the drawings, or in any other convenient and well-known manner. The radial arms G, near their outer ends, carry the bars *c c*, adapted to slide on the said outer ends of the arms G in the lengthwise direction of the latter, and by means of the screw-nuts *d* to be tightened upon the serpentine pipe or system of pipes H, arranged between them, and being conformed to the respective inner shape of the drum R. One end of the serpentine pipe H connects with the inlet-pipe H′, while its other end is connected with outlet-pipe H^2, both the inlet-pipe H′ and outlet-pipe H^2 being inserted into the shaft A, near the opposite ends of the latter, either within the drum R or on the outside thereof, the latter instance being illustrated in the drawings. The ends of the shaft A are made hollow at *e e′*, and the hollow space *e*, near the one end, connects with the inlet-pipe H′, while the hollow space *e′* at the opposite end connects with the outlet-pipe H^2. The said hollow space *e*, in connection with the inlet-pipe H′, is entered by the steam-inlet pipe *h′*, abutting against a shoulder provided within the shaft A, and the hollow space *e′*, at the opposite end of the said shaft, is entered in a similar manner by the steam-outlet pipe h^2, both the pipe *h′* and the pipe h^2 being suitably packed by means of stuffing-boxes and free to rotate within the hollow ends *e e′* of the shaft A. The steam-inlet pipe *h′* connects with some suitable steam-generator or other source of steam, while the pipe h^2 leads to some proper trap for the eduction of the water of condensation.

Having thus described the construction of my improved cocoa-roaster, I will now proceed to describe its operation. The roasting-drum R having been filled to the proper extent with raw cocoa-beans, steam is introduced through the steam-inlet pipe *h′*, and passing through the hollow space *e* said steam will enter the inlet-pipe H′ and pass through the serpentine pipe H, arranged within the drum R, and thence through the outlet-pipe H^2 to the hollow space *e′* and the outlet-pipe h^2, leading to the trap. Rotary motion is then imparted to the shaft E, which by means of the gears D and C, will cause the shaft A to rotate likewise, but with a comparatively slower speed, as will be seen from the drawings, the drum R and the system of pipes, H′, H, and H^2,

being bound to partake in the rotary motion of the shaft A, as will be readily understood, the steam being constantly supplied until the roasting process is finished.

With my improved cocoa-roaster, as herein described, but the least possible supply of steam will be required as compared to roasting apparatus of a similar nature, and the roasting will take place in a uniform manner without causing any breakage of the beans, while at the same time all danger of fire and of burning the beans is avoided without there being any attendance required while the roasting is going on.

I wish it to be distinctly understood that I do not confine myself to applying my improved roasting apparatus solely to the purposes of roasting cocoa-beans, since it will be readily seen that the said apparatus may be used with the same advantage for the roasting of similar articles, and, when combined with a suitable steam over-heater, with particular advantage for the roasting of coffee-beans.

I am aware that grain-driers have been composed of a drum, a rotating shaft connected at one end with a steam-supply pipe and at the other end constructed with a discharge-outlet, longitudinal steam-pipes being arranged to receive steam and rotate with the shaft, and such I do not claim.

I am well aware that drying-cylinders have heretofore been heated by internal steam-pipes, which run longitudinally within said cylinder and communicate with a hollow shaft, forming steam outlet and inlet chambers. I disclaim such construction, as it forms no part of my invention.

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

The combination of a revolving shaft having a steam-inlet at one end and a discharge-outlet at the opposite end, a drum rigid on the shaft, radial arms rigid on the shaft, longitudinal bars on the outer ends of the radial arms, a system of piping held between the plates around the shaft, a pipe connecting one end of the system of piping with the steam-inlet of the shaft, and a pipe connecting the other end of the system of piping with the discharge-outlet of the shaft, substantially as described.

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

HEINRICH STOLLWERCK.

Witnesses:
SAMUEL SPACKMAN,
TH. BEITMAN.