

(No Model.)

2 Sheets—Sheet 1.

H. MONK.
LOCOMOTIVE FURNACE.

No. 328,048.

Patented Oct. 13, 1885.

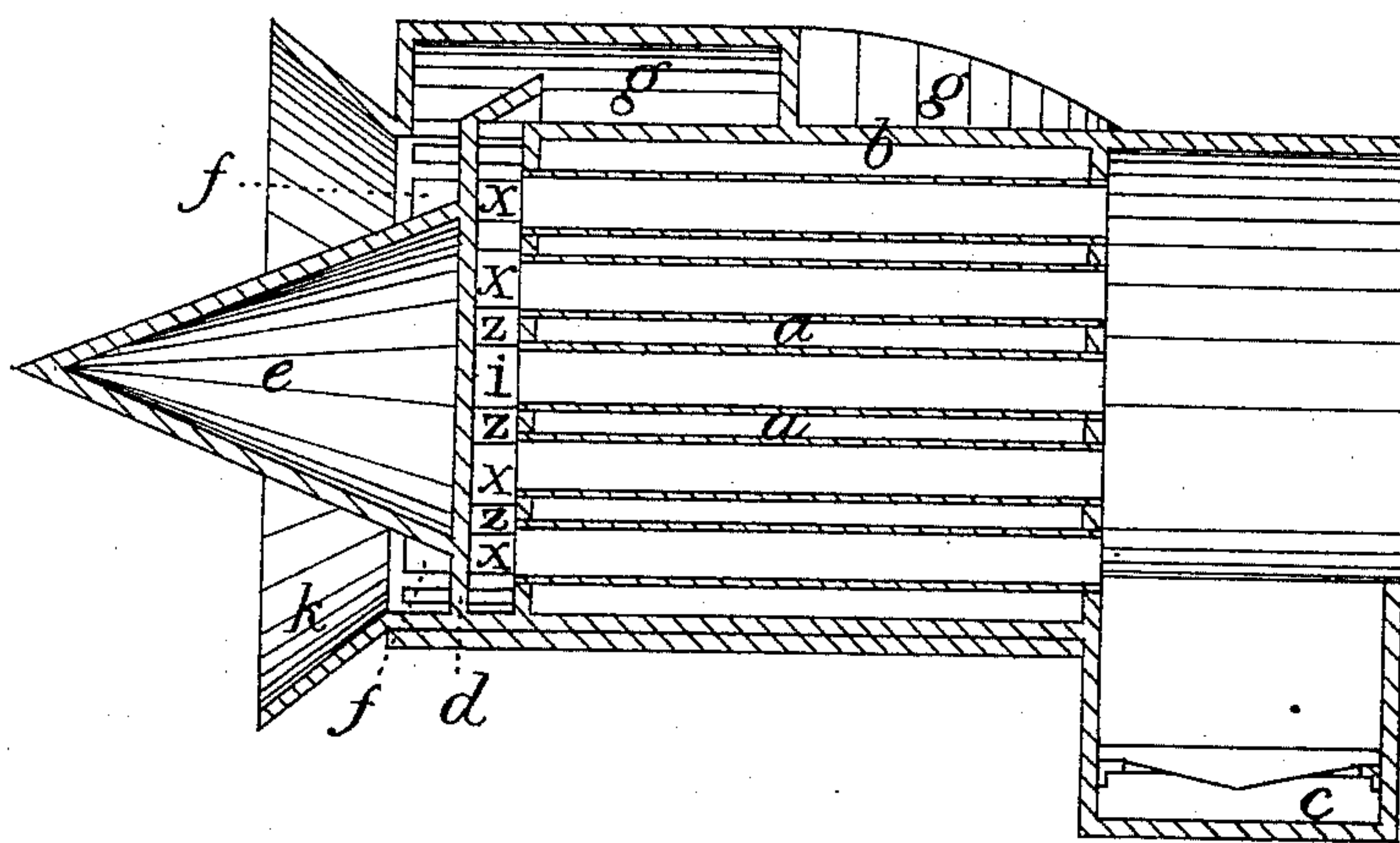


FIG. 1.

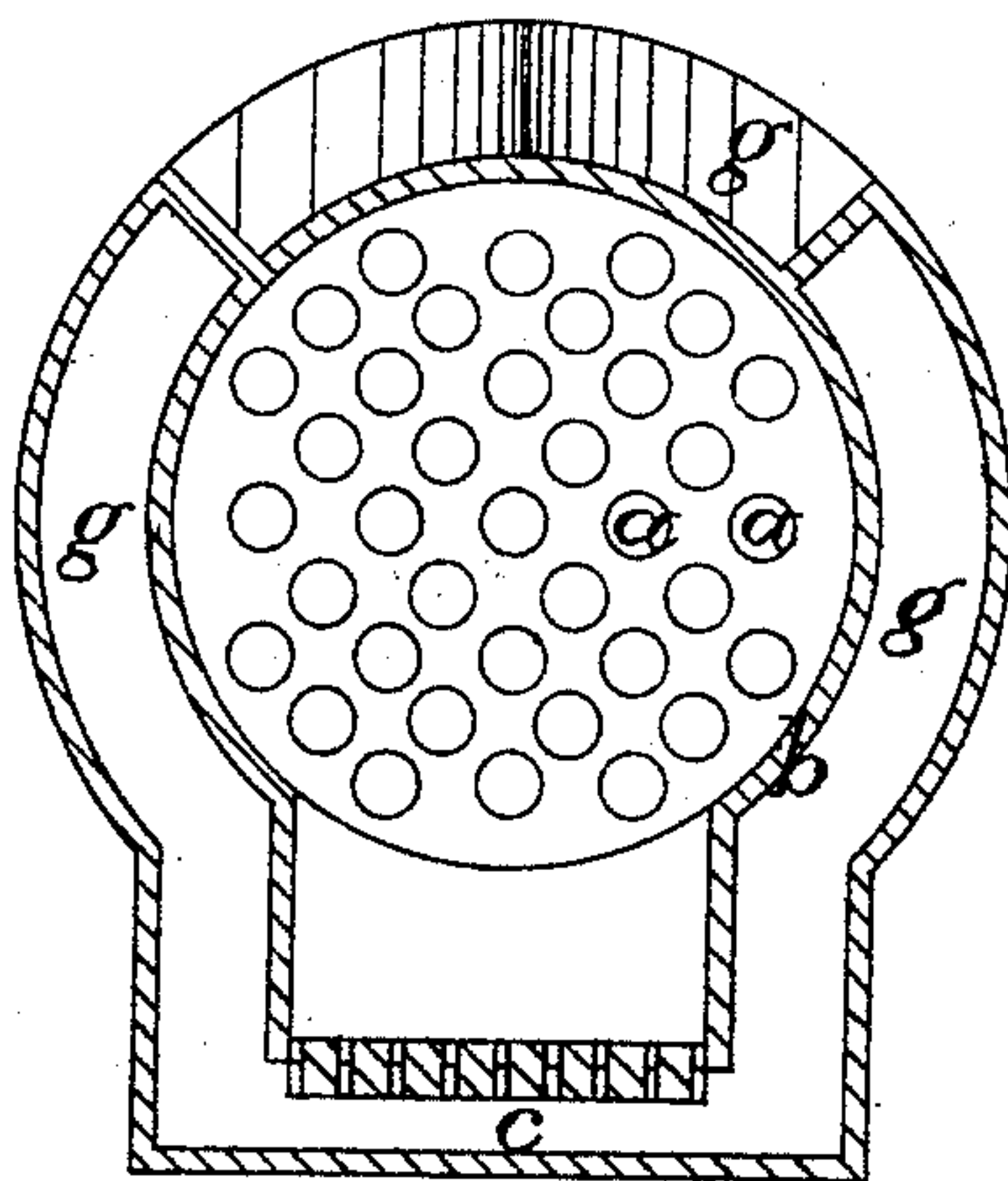


FIG. 2.

WITNESSES:

Chas. H. Kimball
John P. Corrigan.

INVENTOR:

Henry Monk
Per atty
William Henry Clifford.

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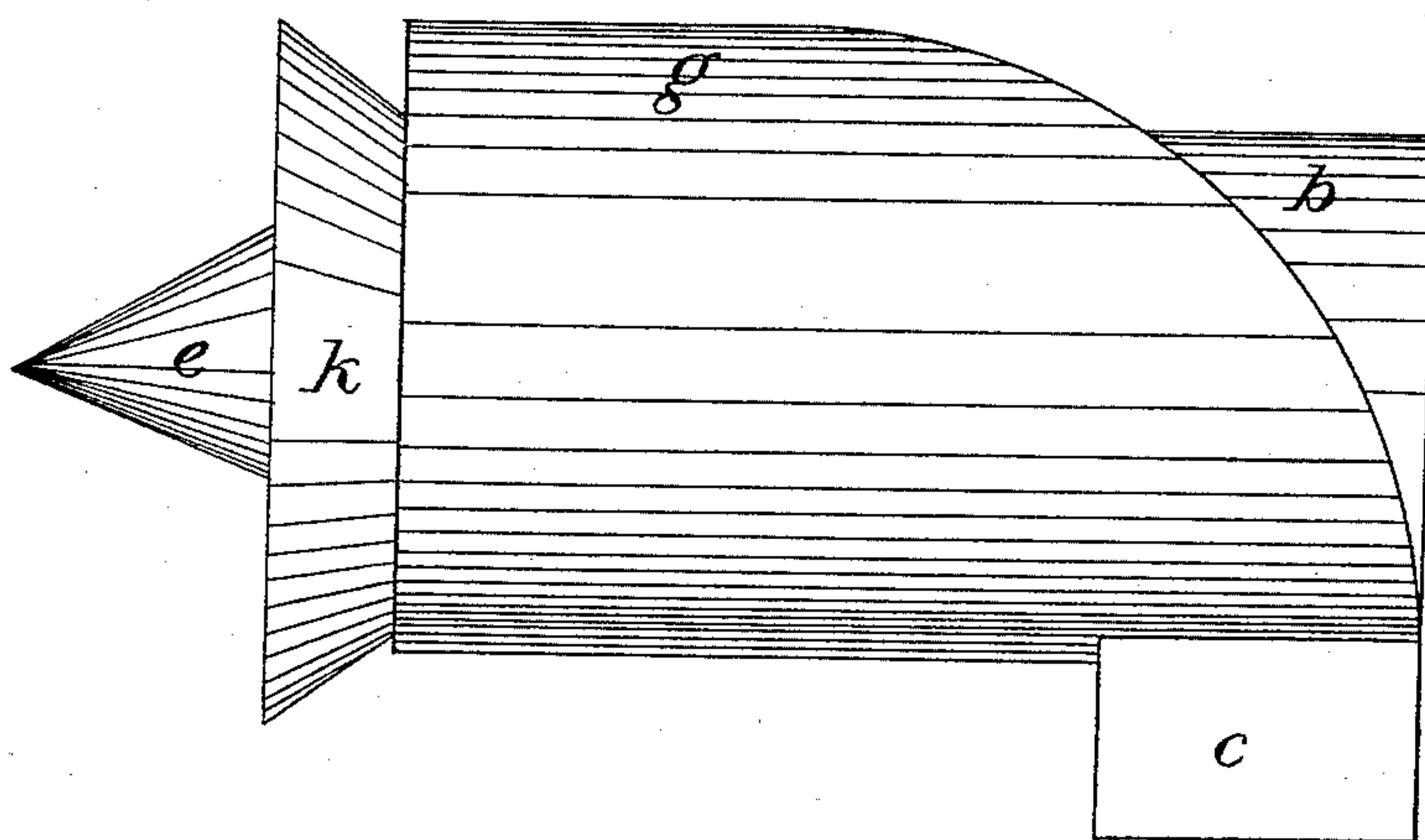


FIG. 3.

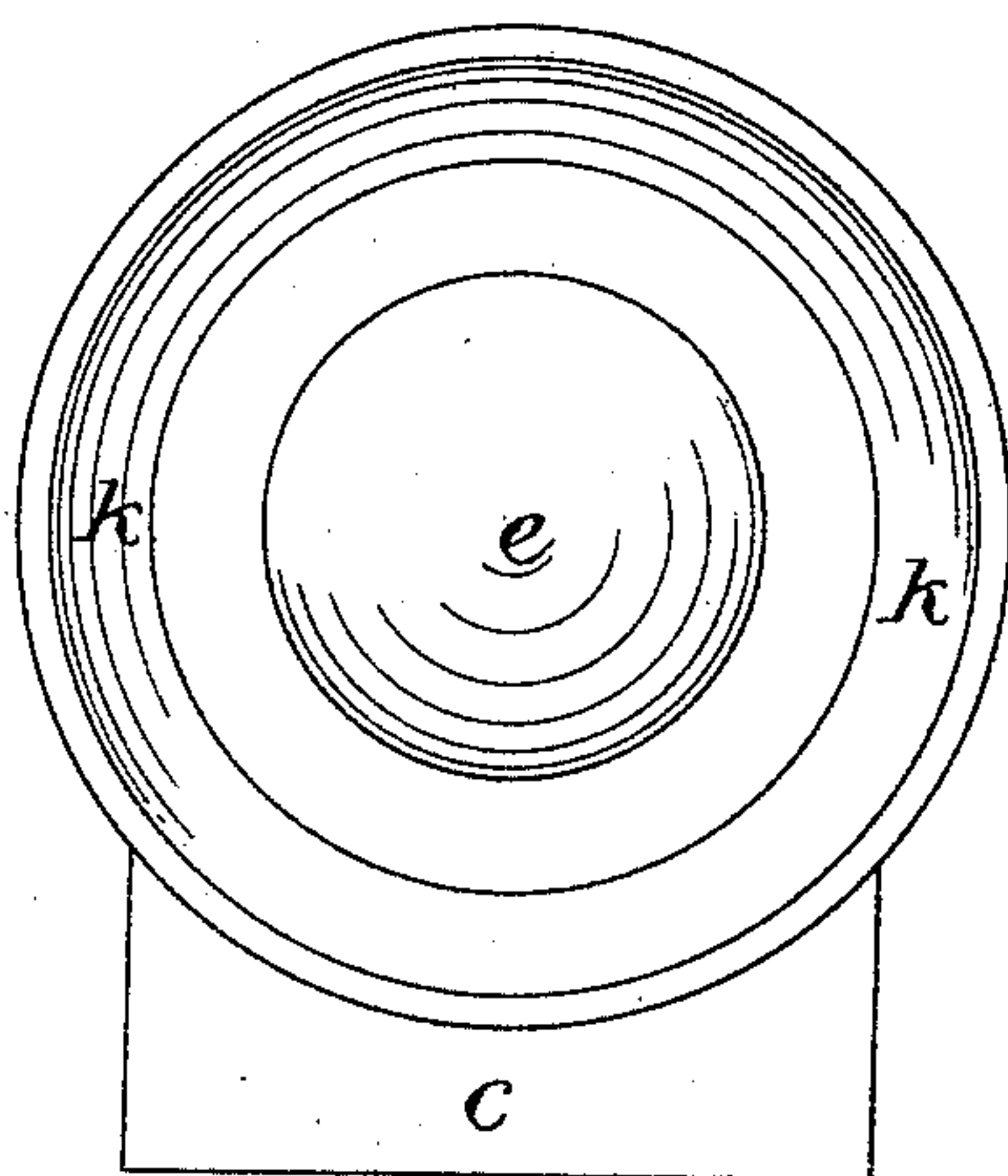


FIG. 4.

WITNESSES:

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INVENTOR:

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William Henry Clifford

UNITED STATES PATENT OFFICE.

HENRY MONK, OF LEWISTON, MAINE.

LOCOMOTIVE-FURNACE.

SPECIFICATION forming part of Letters Patent No. 328,048, dated October 13, 1885.

Application filed June 24, 1885. Serial No. 169,611. (No model.)

To all whom it may concern:

Be it known that I, HENRY MONK, of Lewiston, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Locomotive-Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a longitudinal vertical section of a locomotive-furnace with my improvement connected therewith. Fig. 2 is a vertical transverse section. Fig. 3 is a side elevation. Fig. 4 is a front end view.

Same letters show like parts.

My invention relates to locomotive-furnaces, and refers more especially to the mode of creating the draft for the fire, for consuming gas and coal-smoke, and preventing the escape of cinders or sparks.

In my invention the smoke and gases resulting from combustion are, after rising from the fire and passing through the flues *a*, carried back again through a chamber or chambers outside of the boiler cover or envelope *b*, into the ash-pit *c*, where they are by the artificial draft created by my improvement again subjected to the action of the fire. Cinders and sparks which are not swept up into the fire are deposited in the ash-pit *c* for removal when convenient. I rely for the maintaining of the draft in my improved locomotive upon the impact of the engine as it moves against the atmospheric air. As seen in Fig. 1, the front ends of the flues *a* are covered by a disk, *d*, placed a little in front of their forward open ends. This disk may or may not have the conical projection *e*. If such a projection, as *e*, is used it is merely to divide the air, so to speak, and send it off all around the projection *e* into the passages *f*. These passages *f* are slits or apertures cut in the outer cover or envelope, *b*, of the boiler. This envelope is made to extend a little beyond the front ends of the flues *a*, as is illustrated in Fig. 1. These passages *f* lead into chambers *g*. These chambers *g* extend along on the outside of the

boiler cover or envelope *b* backwardly and down into the ash-pit *c* under the fire-grate. Thus when the engine is in motion a continuous current of air enters the passages *f*, and flows along the chambers *g* backwardly, and down into the ash-pit, and up through the grate and fire and fuel thereon. Thus a continuous draft is produced on the fuel and through the same without the use of steam, as is the common way in locomotives.

As the air flows backwardly through the passages *f* and chambers *g*, it performs also another office. Immediately in the rear of the disk *d* are the apertures *x*, also in the envelope *b* of the boiler. A small space, *i*, is left between the disk *d* and the tube-sheet, in which are the forward mouths or openings of the flues. As the air enters the forward part of the locomotive and strikes the disk *d*, it enters the passages *f*, as before described. Then, as it flows backwardly in the chambers *g*, it passes by the slits or openings *x* in the cover of the boiler, which leads directly into the space *i*. Rushing by these slits or openings the air makes a draft and draws out the smoke and gas from the fire and in the flues, and carries the same with it back again outside the boiler-cover, and in the chambers *g* into the ash-pit, and under, and so up into the fire again, to be consumed therein. This air-current sweeps with it also the cinders and sparks into the ash-pit, and some perhaps into the fire again.

The forward end of the locomotive may have a flaring form, as seen at *k*, Fig. 1.

Thus we see that the fire once being kindled while the locomotive is stationary, and steam produced sufficient to work the engine, the motion of the engine against the atmospheric air produces a draft in and under the fire and one which carries back with it into the fire smoke and gases resulting from combustion, as well as cinders and sparks.

The chambers herein described may be placed within the outside or envelope of the boiler, if desired.

In order to render Fig. 1 quite plain let it be understood that *z* shows merely connections of one part of the outside or envelope of the boiler with the part of the same in front of the apertures *x*.

The entire interior space between the disk *d* and the tube-sheet is intended to be indicated by *i*, while the apertures between the connections *z*, leading into the space *i*, are indicated by *x*.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with the locomotive boiler and fire-flues, as described, the disk *d*, passages *f*, and chambers *g*, leading back to the ash-pit, as set forth.

2. In combination with the locomotive boiler and flues, as set forth, the disk *d*, passages *f*, chambers *g*, space *i*, and openings in the boiler-cover immediately behind the disk *d*, as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY MONK.

Witnesses:

EDGAR M. BRIGGS,
R. B. HAYES.