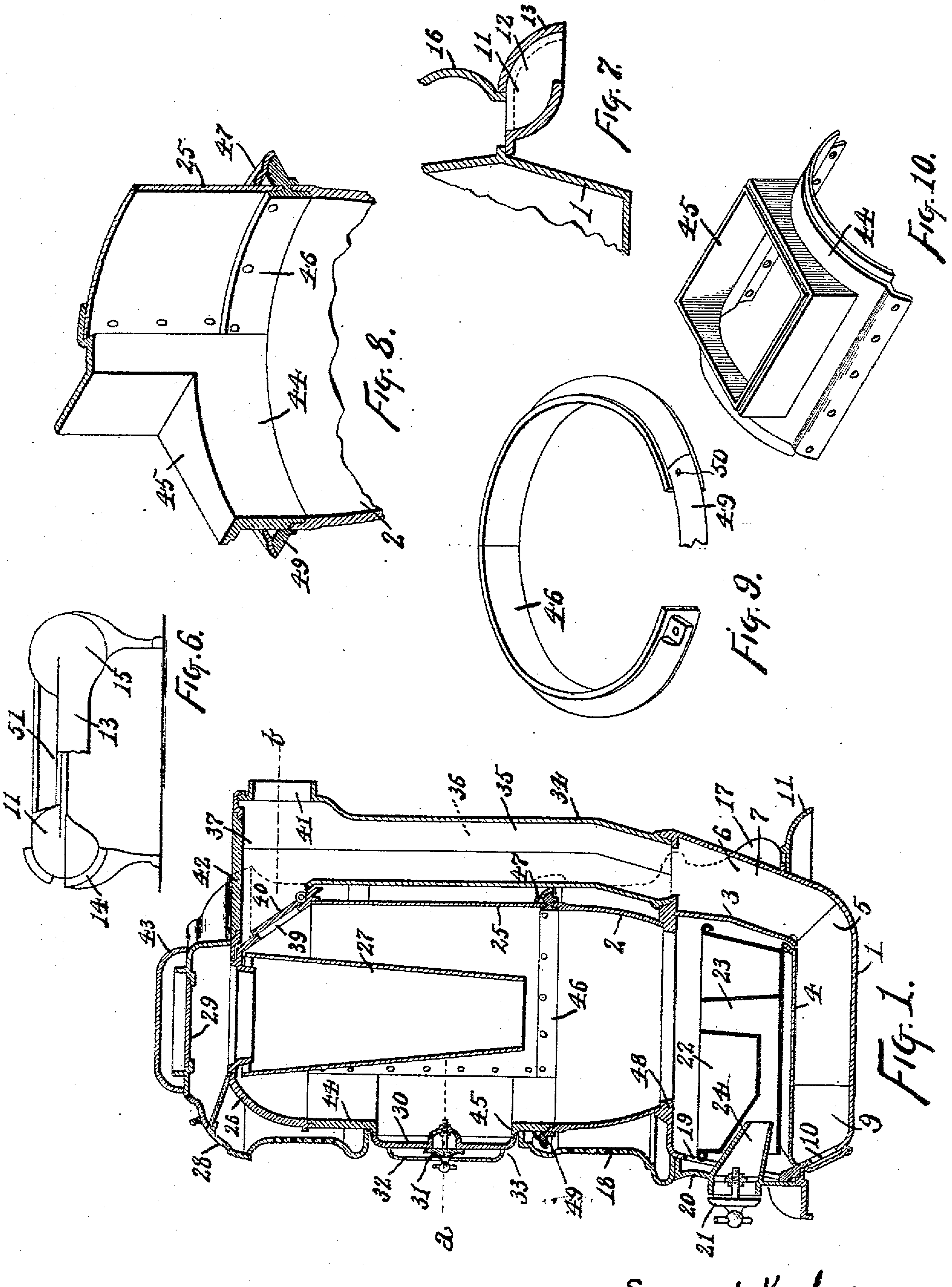
(No Model.)

3 Sheets—Sheet 1.

L. KAHN & E. D. ALLEN.

STOVE.

No. 562,833. Patented June 30, 1896.



Witnesses:
E. R. Shipley
C. M. Sheehan

Lazard Kahn
Eugene D. Allen
Inventors

by James W. See
Attorney

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

(No Model.) 3 Sheets—Sheet 2.

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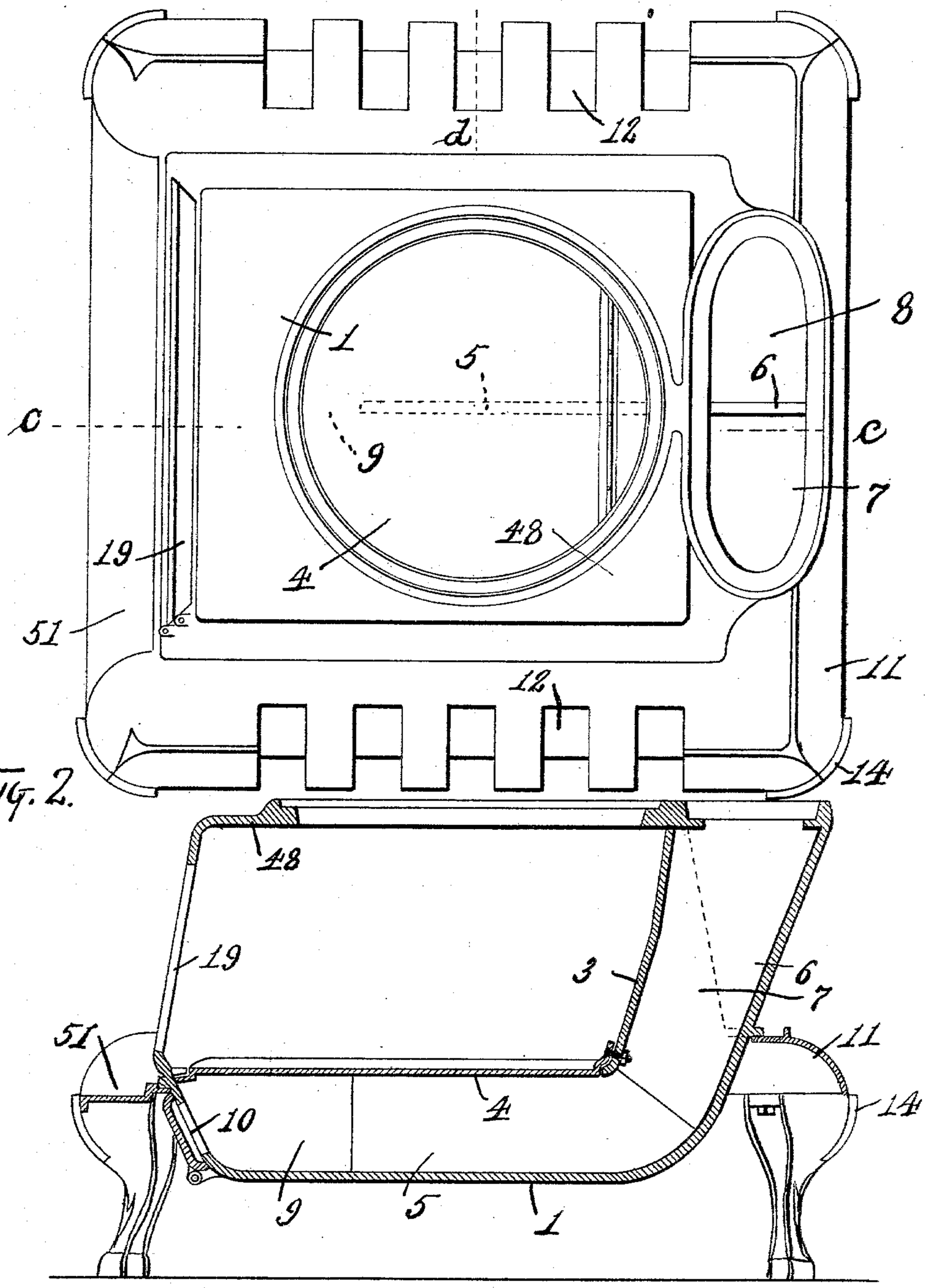

FIG. 2.

FIG. 3.

Witnesses:
E. R. Shipley.
C. M. Sheehan.

Lazard Kahn
Eugene D. Allen
Inventors
by James W. See
Attorney

(No Model.) 3 Sheets—Sheet 3

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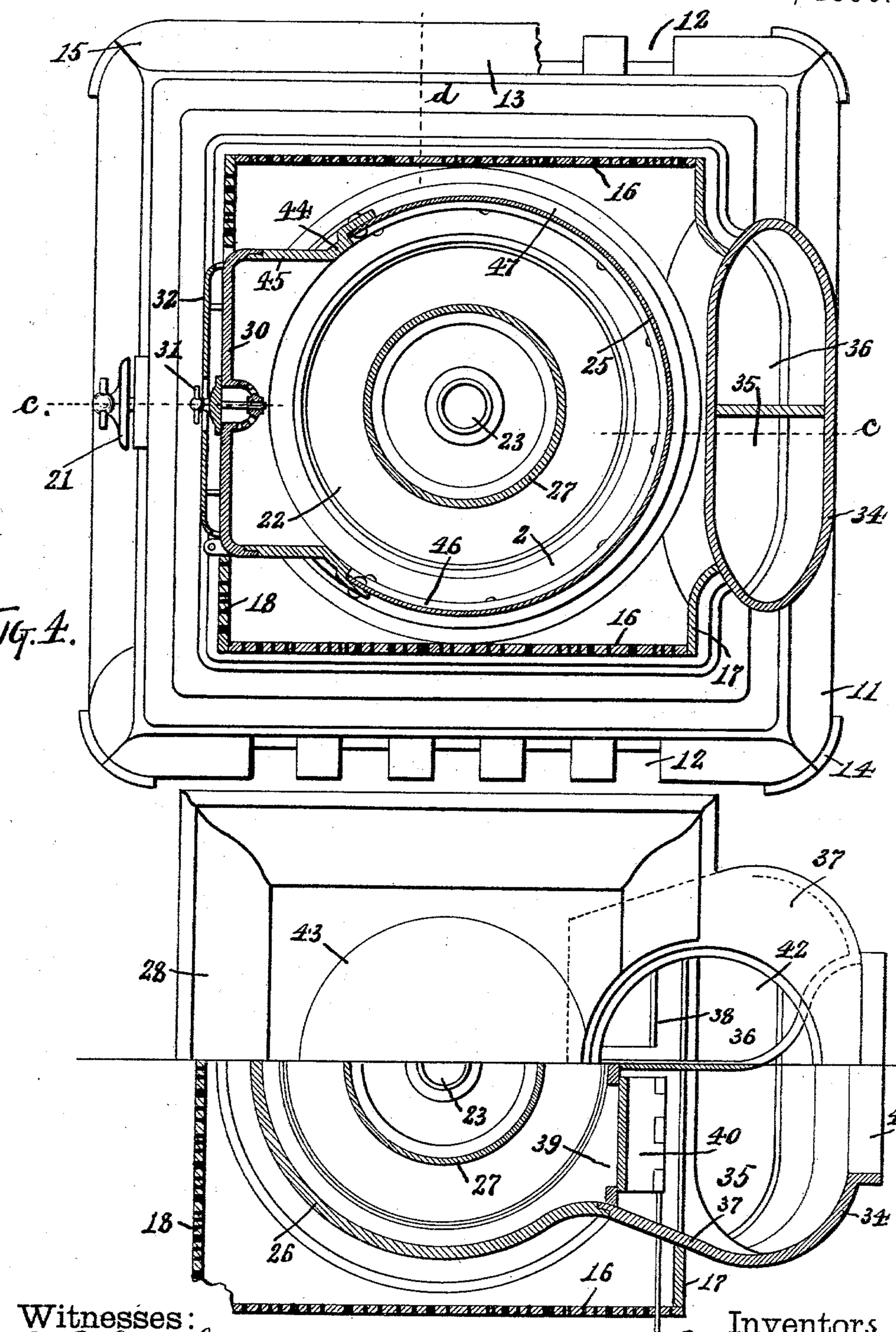

FIG. 4.

FIG. 5.

Witnesses:
E. R. Shipley.
C. M. Shipley.

Inventors
Lazard Kahn
Eugene D. Allen
by James W. See Attorney

UNITED STATES PATENT OFFICE.

LAZARD KAHN AND EUGENE D. ALLEN, OF HAMILTON, OHIO, ASSIGNORS TO F. & L. KAHN & BROS., OF SAME PLACE.

STOVE.

SPECIFICATION forming part of Letters Patent No. 562,833, dated June 30, 1896.

Application filed September 14, 1894. Serial No. 523,061. (No model.)

To all whom it may concern:

Be it known that we, LAZARD KAHN and EUGENE D. ALLEN, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Stoves, of which the following is a specification.

Our invention pertains to improvements in the construction of heating-stoves, and will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical section of a stove embodying our improvements; Fig. 2, a plan of the ash-pit and leg-frame; Fig. 3, a vertical section, same plane as Fig. 1, of the ash-pit and leg-frame; Fig. 4, a horizontal section of the stove in the plane of line *a* of Fig. 1; Fig. 5, a plan of the stove, half appearing in horizontal section in the plane of line *b* of Fig. 1; Fig. 6, a front view of the leg-frame; Fig. 7, a vertical section through a portion of the ash-pit, leg-frame, skirt, and jacket in the plane of line *d* of Figs. 2 and 4; Fig. 8, a perspective, part section, of portions of the fire-pot, door-frame, drum, and joint-ring; Fig. 9, a perspective view of the joint-ring with a portion of the front segment broken away, and Fig. 10 a perspective view of the door-frame.

Referring to the drawings and giving principal attention to Fig. 1, 1 indicates the ash-pit in the form of an integrally-cast box; 2, the fire-pot seating in the top opening in the integrally-cast roof of the ash-pit; 3, a wall-plate disposed across within the rear of the ash-pit and extending from side to side thereof and extending from the roof downwardly, this plate forming the back wall of the ash-pit proper and leaving at the rear a flue-chamber; 4, a floor-plate disposed within the ash-pit and extending from side to side thereof and from the base of wall-plate 3 forwardly to front wall of the ash-pit, the plates 3 and 4 thus forming the rear wall and floor-wall of the ash-pit proper and leaving a flue-chamber to the rear of and under such ash-pit; 5, a partition-plate under plate 4, midway of the width of the ash-pit and extending from the rear of the ash-pit forward, but not to the front wall of the ash-pit; 6, a partition-plate forming an upward prolongation of plate 5 to the roof of the ash-pit; 7, Fig. 2, a flue formed within the ash-pit casting to the rear of the ash-pit proper and extending from the roof of the ash-pit downward and forward to the front of the ash-pit casting to one side of partition-plates 5 and 6; 8, a similar flue upon the other side of the partition-plates; 9, communicating passage between the forward ends of flues 7 and 8, formed by the absence of plate 5 at the front of the ash-pit; 10, a cleaning-door in the front wall of the ash-pit casting below the level of floor-plate 4 and giving access to the horizontal portion of flues 7 and 8; 11, a leg-frame consisting of a strong rectangular ring, under the corners of which are secured the legs, the ash-pit casting seating within the opening of the ring and having an exterior flange resting upon the ring, the outer edge of the ring being formed with a downward projection or curved flange; 12, Figs. 2 and 7, depressions in the side members of the leg-frame, forming notches in the upper surface thereof, these notches extending inwardly to near the ash-pit casting and having the outer portions of their floors suppressed; 13, Figs. 4, 6, and 7, skirt-bars lying against and over the outer margins of the leg-frame and covering the notches 12 at their outer portions, but leaving the inner portions of the notches uncovered, as seen in Fig. 7; 14, rabbets formed in the outer surface of the legs where they join the leg-frame, whereby corner portions of the legs project outwardly beyond the surface of the leg-frame; 15, Figs. 4 and 6, the ends of the skirt-bars 13, dropping curtain-like below the level of the leg-frame and abutting into the rabbets 14 of the legs, whereby the skirt-bars aid in bracing and are given support by the legs; 16, Figs. 4 and 5, side jacket-plates with their bases resting on the leg-frame just within the skirt-bars 13 and extending up to the top of the stove and being perforated to permit the outward escape of heated air; 17, a corresponding back jacket-plate; 18, a corresponding front jacket-plate, the jacket-plates thus forming a perforated casing inclosing the interior stove structure, which interior structure, comprising a fire-pot, drum,

[redacted]

and dome, forms the heater, this jacket being suppressed or having openings where needed to give access to the internal stove structure; 19, the door-opening in the front of the ash-pit; 20, the ash-door hinged to the front of the ash-pit casting; 21, air-register in the ash-pit door; 22, ash-box; 23, a vertical flue in the ash-box centrally under the fire-pot, its lower portion extending forwardly to the front of the ash-box, and 24 nozzle from air-register 21 to front end of flue 23.

In ordinary stove construction it is found that air admitted under the grate seeks a short cut to and through the fuel, resulting in superior combustion at the front of the body of the fuel and in dead fire and often merely banked ashes at the rear of the body of the fuel. This detracts from the proper burning of the fuel and from the even heating of the stove and causes the burning out of the front of the fire-pot and also the burning of the general front portions of the stove. In the system of air supply illustrated there is a symmetrical supply of air to the body of the fuel, enhancing the perfection and uniformity of combustion and the even heating of the stove and utilization of its radiating surfaces, and preventing the damaging concentration of heat at the front portion of the stove.

Proceeding with the drawings, 25 indicates the drum extending upwardly from the rim of the fire-pot and joined thereto in a peculiar manner, as hereinafter explained; 26, the dome, an integral casting surmounting the drum and forming the roof to the combustion-chamber; 27, the magazine depending from the dome; 28, the roof of the jacket, resting upon the jacket-plates and extending over, but some distance above, the top of the dome; 29, cover-hole in the roof of the jacket, giving access to the top of the magazine, if the magazine be present, or giving access to the roof of the dome in case it should be desired to set a vessel upon the dome; 30, the feed-door; 31, an air-register in the feed-door placed exterior to the feed-door and operating by an inward-and-outward movement; 32, a face-plate masking the front of the door and placed exterior to the register and at a little distance from the door, the register working in the space thus formed and serving, when inward, to close the air-opening in the door, and, when outward, opening that air-opening and closing the opening in the face-plate; and 33, air-openings around the margin of the face-plate, admitting air to the space between the face-plate and the door.

When register 31 is closed, then air enters behind the mask-plate and out at the central opening therein, protecting the mask-plate from the high heat of the door, and when the register is open then the air entering the combustion-chamber serves in cooling the space behind the face-plate.

Proceeding with the drawings, 34 indicates a vertical-flue structure seating in an opening in the integrally-cast roof of the ash-pit over flues 7 and 8, this flue structure having a central partition dividing it into two flues registering with the flues below; 35, Figs. 4 and 5, that one of these vertical flues which registers with lower flue 7; 36, that one of them which registers with lower flue 8; 37, an elbow formed at the top of the flue structure 38 and reaching inwardly to and against the rear wall of dome 26; 38, Fig. 5, an opening through the rear wall of the dome into top of flue 36; 39, a similar opening from the dome into the top of flue 35; 40, a damper by means of which opening 39 may be opened and closed; 41, pipe-collar to receive the stovepipe, this pipe-collar being in communication only with the upper end of flue 35; 42, cover-hole in the top of elbow 37, giving access to the vertical flues and forming a place for a vessel, and 43 ornamental top crown.

When damper 40 is open, the draft is direct from the combustion-chamber to the stovepipe. When this damper is closed, the draft must be through opening 38, thence down to the base-flues, and then up to the stovepipe. The flue construction at the base of the stove, where leakage is liable to take place, is all inclosed within the integrally-formed ash-pit casting, and consequently no leak can take place outwardly, any escaping gases being drawn up to the stovepipe. The top rim of the magazine where it joins the dome is not tight against the inner surface of the dome, but is left open, whereby a slight draft occurs at the top of the magazine sufficient to draw off the cold gases from the fuel into the jointless dome, whence it can go with the other gases to the stovepipe.

Proceeding with the drawings, 44 (best seen in Fig. 10) indicates a casting forming a broad front stave of drum 25, this casting forming also the door-frame for the feed-door 30; 45, the door-jamb of the feed-door; 46, a joint-ring, formed in segments and seating upon the top of the fire-pot, the drum being secured to this joint-ring, the joint-ring thus forming a segmental arming at the base of the drum where it joins the fire-pot, the joint-ring projecting outwardly to give width for bolting the ends of the segments, this joint-ring having a cylindrical portion fitting down within the fire-pot and up within the drum; 47, a cover-ring resting upon the joint-ring and fitting closely around the base of the drum; 48, the integrally-cast top of the ash-pit casting, which has been heretofore referred to; 49, the front segment of joint-ring 46, this joint-ring having no cylindrical portion fitting down within the fire-pot and up within the drum, the base of door-frame 44 taking the place of the front of this portion of the joint-ring, whereby front segment 49 becomes merely an exterior agent to unite the ends of the other segments of the joint-ring; 50, joint-bolts uniting the overlapping ends of the segments of the joint-ring 46 and serving also to unite the drum structure to the fire-pot, and

51 a depression of the front bar of the leg-frame to permit of the presence of the ash-door.

Great trouble has been experienced, in stove construction, in securing a satisfactory joint between the drum and fire-pot, high heats and unequal expansion tending to crack and burn the adjoining edges of large and expensive parts. In our improved construction the joint-ring 46 protects the adjoining edges of fire-pot and drum and serves as a means of uniting them, and by its segmental construction gives flexibility to compensate for expansion and contraction. Cover-ring 47 protects the joints of the joint-ring and binds the exterior of the drum. The lower corners of the front of the drum, where they seat against the inner surface of the door-frame, are held and protected by the forward ends of the interior part of the joint-ring, being clamped between the joint-ring 46 and the side margins of the door-frame forming the front stave of the drum, as will be clear from an inspection of Fig. 8.

It will be noticed that there is a pipe-collar at the cover-hole 29. By removing top piece 43 and cover 29 a heating-pipe may extend from this pipe-collar to carry heated air into a room above that in which the stove is set.

We claim as our invention—

1. In a stove, the combination, substantially as set forth, of a fire-pot, a junction-ring formed in segmental sections joined at their ends and seating within the upper edge of said fire-pot, and a combustion-section disposed outside said junction-ring above the fire-pot and secured to the segments thereof.

2. In a stove, the combination, substantially as set forth, of a fire-pot, segments seated within the top of said fire-pot and abutting at the rear of the stove and suppressed at the front of the stove, a door-frame with its lower edge seated within the top of the fire-pot and completing the circle of said segments, and a combustion section or drum secured to said segments and to said door-frame.

3. In a stove, the combination, substantially as set forth, of a fire-pot, segments seating within the top of said fire-pot and abutting at the rear and suppressed at the front of the stove, a door-frame with its lower edge seating within the top of the fire-pot and completing the circle of said segments, a combustion section or drum secured to said segments and door-frame, and a segment engaging the front of said door-frame and having its rear extremities united to the front extremities of the first-mentioned segments.

4. In a stove, the combination, substantially as set forth, of a door-frame forming a front stave for the combustion-section of the stove, a drum completing the circle of said combustion-section and having its approaching vertical edges secured against the interior surfaces of the side margins of said door-frame, a junction-ring secured within the lower edge of said drum and clamping the front lower corners thereof against said door-frame and protecting the inner surface of said corners, and a fire-pot to the upper edge of which said junction-ring is secured.

5. In a stove, the combination, substantially as set forth, of a leg-frame provided in its upper outer margins with notches or depressions, an inner stove structure supported by said leg-frame, and jacket-plates inclosing said inner stove structure and resting on said leg-frame outwardly beyond the inner extremities and inwardly beyond the outer extremities of said notches.

6. In a stove, the combination, substantially as set forth, of a leg-frame provided on its outer margin with upwardly-open depressions or notches, skirt-bars secured over the outer portions of said leg-frame and notches, an inner stove structure supported on said leg-frame, and jacket-plates inclosing said inner stove structure and resting on said leg-frame at the inner margins of said skirt-bars.

7. In a stove, the combination, substantially as set forth, of a door, an outer marginally-notched face-plate secured rigidly to and near the door, said door and face-plate having registering air-openings, and a register working between said door and face-plate and closing said openings alternatively.

8. In a stove, the combination, substantially as set forth, of a door, an outer marginally-notched face-plate secured rigidly to and near the door, said door and face-plate having registering air-openings, and a register screwing to and from said door and face-plate and closing said openings alternatively.

9. In a stove, the combination, substantially as set forth, of an air-flue discharging under the fire-pot of the stove, and an ash-receiver surrounding said air-flue.

10. In a stove, the combination, substantially as set forth, of an ash-pan having a flue disposed so as to discharge under the fire-pot of the stove, and an airway leading to said flue from the exterior of the stove.

11. In a stove, the combination, substantially as set forth, of an ash-pan having a central vertical flue and a horizontal flue communicating therewith and open at its front, and an ash-door having a nozzle communicating with the front of said horizontal flue.

12. In a stove, the combination, substantially as set forth, of a stove structure, a bottom piece or leg-frame supporting the same and projecting outwardly therefrom, legs at the corners of the leg-frame, and skirt-bars separably secured to said leg-frame over the outer projections thereof and forming an air-space between the leg-frame and skirt.

LAZARD KAHN.
EUGENE D. ALLEN.

Witnesses:
CHARLES J. PARRISH,
J. W. SEE.