E. K. STANDISH.

BLOWER FOR BOILERS.

APPLICATION FILED SEPT. 19, 1910.

995,811.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

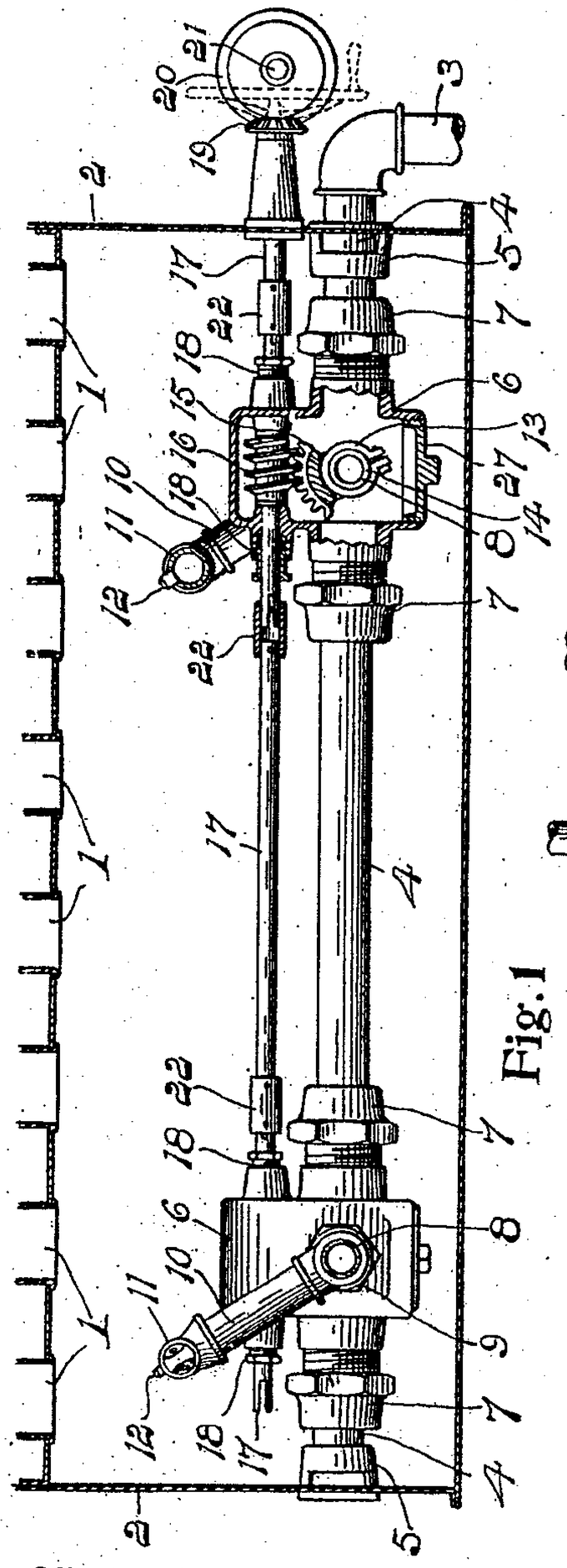

Fig. 1

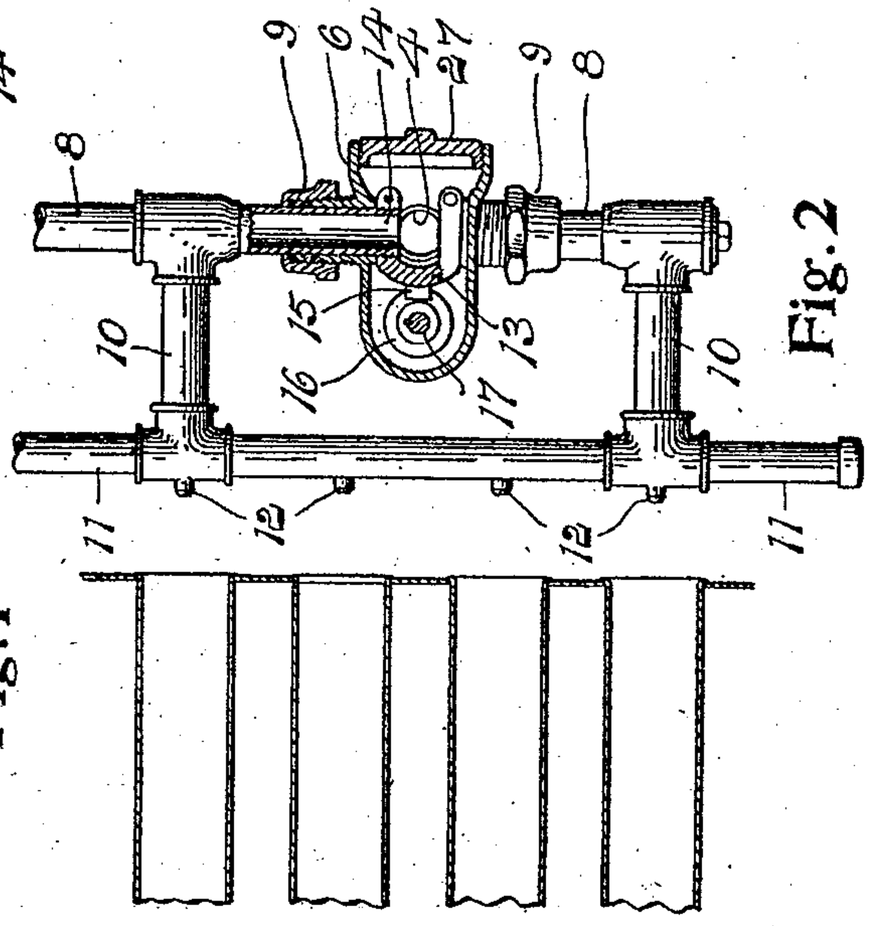

Fig. 2

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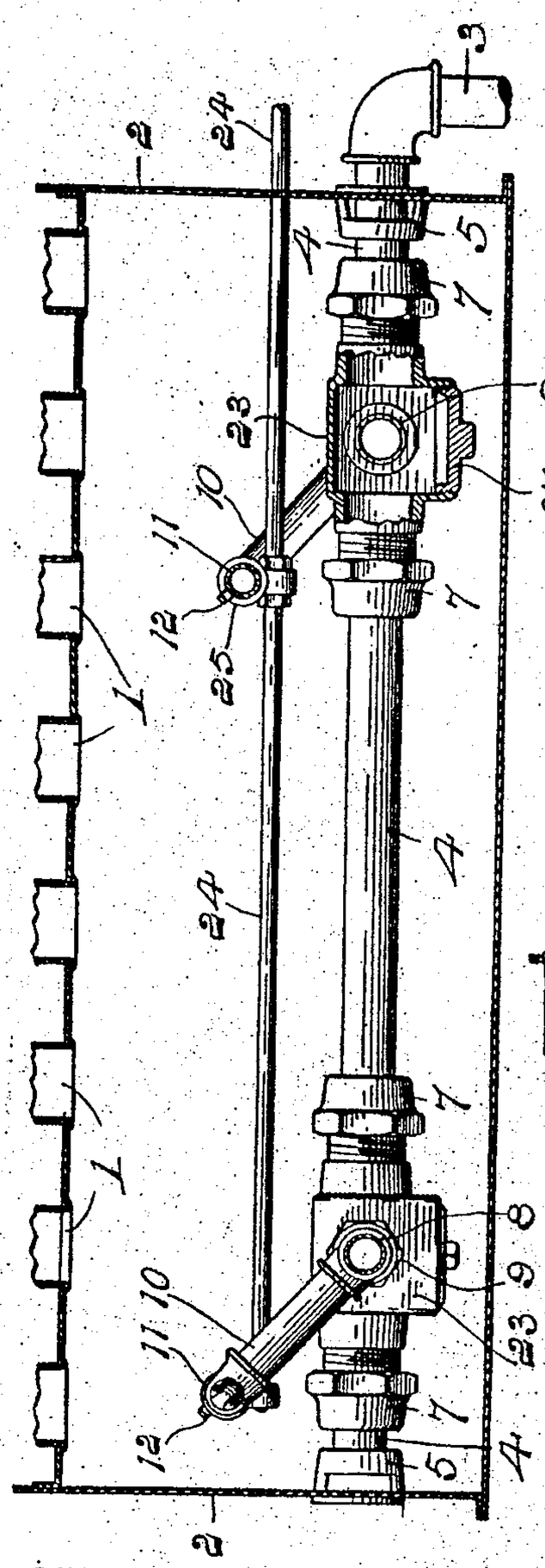

Fig. 3.

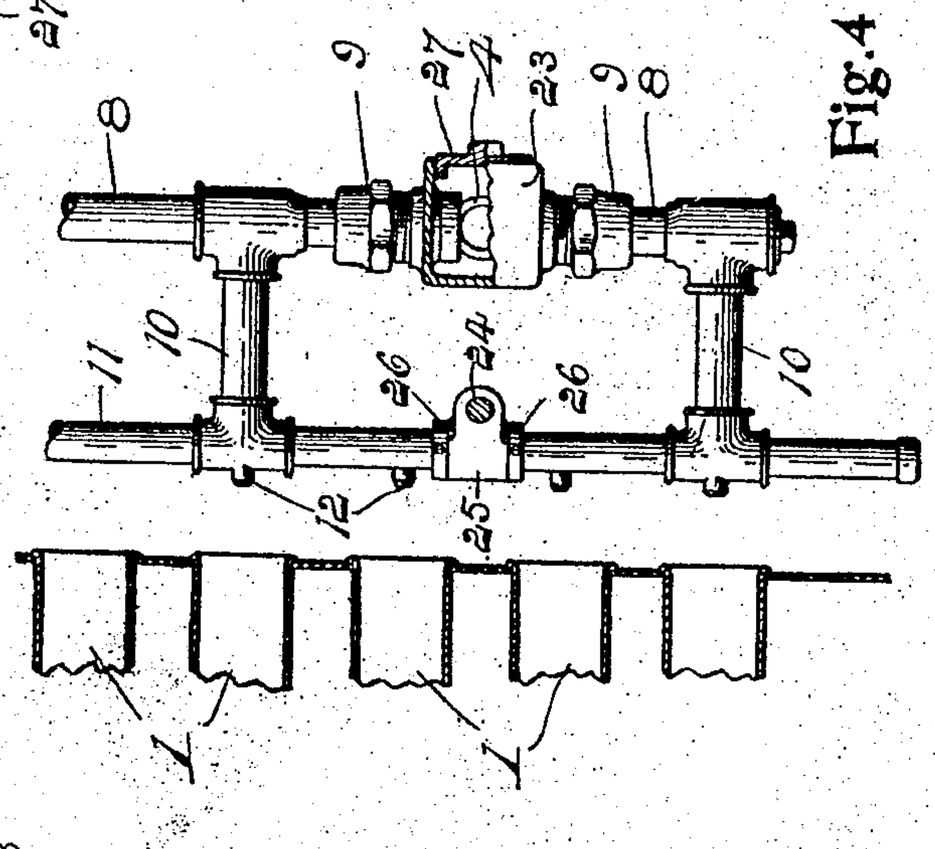

Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWARD K. STANDISH, OF DETROIT, MICHIGAN, ASSIGNOR TO DIAMOND BOWER SPECIALTY COMPANY, OF DETROIT, MICHIGAN, A PARTNERSHIP.

BLOWER FOR BOILERS.

995,811. Specification of Letters Patent. Patented June 20, 1911.

Application filed September 19, 1910. Serial No. 582,602.

To all whom it may concern:

Be it known that I, EDWARD K. STANDISH, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Blowers for Boilers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in blowers for boilers and more particularly to blowers especially adapted for blowing the flues of boilers of the marine type.

The object of the invention is to provide certain new and useful features in the construction and arrangement of parts whereby a cheap, efficient and economical construction is secured, all as hereinafter more fully described and particularly pointed out in the claims reference being had to the accompanying drawings in which,

Figure 1 is a horizontal section through a boiler showing a device embodying the invention in operative position and with parts broken away to show the construction; Fig. 2 is a vertical sectional detail of the same; Fig. 3 is a view similar to Fig. 1 showing a modified construction; and Fig. 4 is a view similar to Fig. 2 showing the modification illustrated in Fig. 3.

In the drawings 1 represents the tubes or flues of the boiler and 2 the smoke box or breeching into which the tubes open.

3 is a steam supply pipe leading from the boiler or other source of steam supply under pressure and this supply pipe is connected to the end of a steam pipe 4 mounted in bearings 5 in the ends of the breeching and extending across the same in a horizontal position at a distance from the open ends of the tubes or flues 1. Located at intervals within the line of the steam pipe 4 are glands 6 forming suitable boxes or casings into which the pipe 4 opens through suitable stuffing boxes 7 at each side of each gland or casing. A vertically extending steam pipe 8 is rotatably mounted upon each of the casings 6, the ends extending through stuffing boxes 9 above and below the casing and rotatable therein. The pipe is preferably made in two parts one extending upward and the other downward from the casing with the ends of the two parts opening within the casing for the free passage of steam into said open ends. Extending laterally from the pipe 8 are branches 10 connecting the pipe 8 with a vertically extending header pipe 11 which is provided with a series of jet nozzles 12 throughout its length, preferably one for each horizontal row of flues to direct a jet of steam into the open end of said flues.

In order that the headers may be moved to direct the jets of steam into the ends of several vertical rows of flues, each of said headers is swung about the vertical axis of the pipe 8, said pipe turning within its bearings in the casing 6 and to so turn the pipe 8 and swing the header, a yoke 13 is secured to the inner projecting ends 14 of the two parts of the pipe 8. This yoke is formed with a gear segment 15 adapted to be engaged by a worm 16 on a shaft 17 mounted in bearings in the casing 6, said bearings being provided with stuffing boxes 18 to prevent the escape of steam from the casing through the bearings. The shaft 17 is extended through one side of the breeching 2 and provided with a beveled gear 19 engaged by a gear 20 on a shaft 21 which shaft may be turned by any suitable means. If found desirable a hand wheel shown in dotted lines in Fig. 2 may be secured directly to the outer end of the shaft 17 for turning the same. The shaft 17 may be made in sections as shown and the sections coupled together by coupling sleeves 22 so that in setting up the device the parts may be quickly and easily assembled without the necessity for accurately cutting and fitting the shaft. A greater or lesser number of casings 6 are placed in the pipe 4 according to the size of the boiler so that when the headers are swung from side to side all of the flues of the boiler will be blown, and the header pipes 12 may be extended vertically to correspond with the height of the bank of flues opposite which it is located, to blow all of said tubes.

In the construction shown in Figs. 3 and 4 the operating worms and gears with their operating shaft are eliminated and the casings 23 are shortened. In this construction the headers are turned by means of the rod 24 which is attached to each header pipe by means of a sleeve 25 having a laterally extending ear in which the rod is secured. By moving the rod endwise the several headers are swung from side to side, the sleeves turning upon the header pipes be-

tween the collars 26. Access may be had to the casings 6 and 23 by removing the screw plug 27 from an opening in the side of each casing.

Having thus fully described my invention what I claim is:—

1. In combination with a boiler having a breeching, a fixed steam pipe extending horizontally across the breeching and mounted in the end walls thereof, pipes rotatably mounted on said steam pipe and extending upward and downward therefrom at right angles thereto within the breeching, branch pipes extending laterally from said rotatable pipes, a header pipe connecting the ends of the branch pipes on each rotatable pipe, and means for turning the rotatable pipes.

2. In combination with a boiler having a breeching, a steam pipe mounted in horizontal position in bearings in said breeching, a plurality of casings located within said pipe, a vertically extending pipe rotatably mounted within each casing and communicating with the interior thereof to receive steam therefrom, said pipes extending below and above said casings within the breeching, branch pipes extending laterally from the rotatable pipes, a header pipe secured to and connecting the outer ends of the branch pipes on each rotatable pipe and extending parallel with the rotatable pipes to turn about the axes of the same, and means extending outside the wall of the breeching for simultaneously turning the several headers.

3. In combination with a boiler having a breeching, a steam pipe extending across the breeching, a casing in said pipe receiving steam therefrom, a steam pipe rotatably mounted upon the casing and communicating with the interior thereof to receive steam therefrom, a branch pipe extending laterally from the rotatable pipe, a header on the branch pipe, an operating shaft mounted in bearings on the casing and extending outside the breeching, a worm on the shaft, and a segment within the casing and secured to the rotatable pipe in engagement with the worm.

4. A device of the character described comprising a casing, a steam supply pipe opening into the casing, bearings on the casing, a pipe comprising two parts rotatably mounted in said bearings with the open inner ends of the two parts extending into the casing to receive steam therefrom, a yoke secured to and connecting said inner ends of the two parts of the rotatable pipe within the casing, a segmental rack on said yoke, a shaft mounted in bearings in the casing, a worm on said shaft engaging the rack, and a header carried by said rotatable pipe to turn therewith.

5. In combination with a boiler having a breeching, a horizontally extending steam pipe mounted within the breeching, a plurality of casings in said pipe within the breeching each having an opening in one side, bearings in the upper and lower sides of said casings, vertically extending pipes rotatably mounted in said bearings with their open inner ends extending into said casings to receive steam therefrom, branch pipes extending laterally from said rotatable pipes, header pipes connecting the branch pipes and extending parallel with the rotatable pipes to turn therewith, a series of jet nozzles on each header pipe, means for simultaneously turning the rotatable pipes and their headers, and detachable closures for the openings in the sides of the casings.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD K. STANDISH.

Witnesses:
LEWIS E. FLANDERS,
OTTO F. BARTHEL.