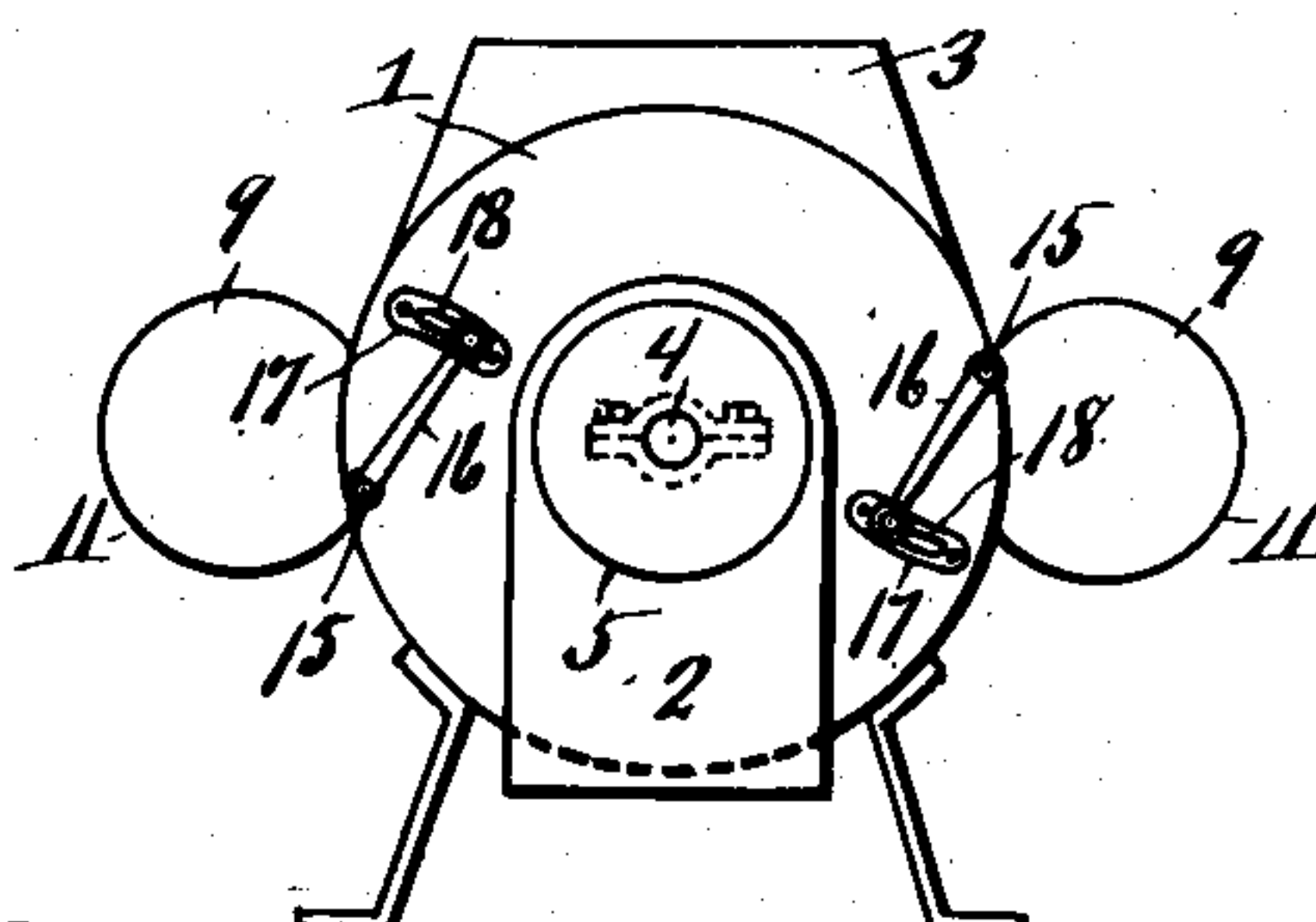
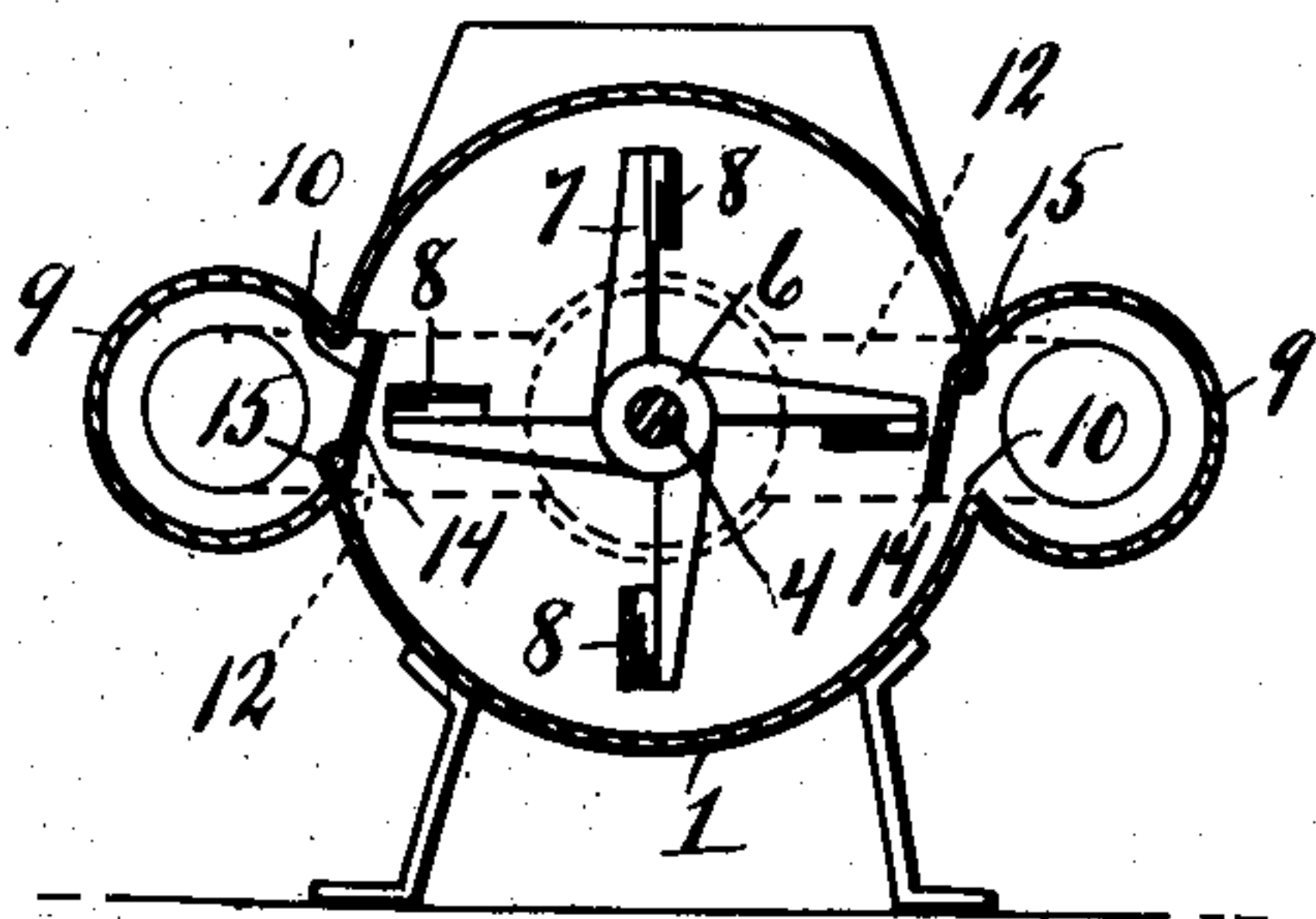
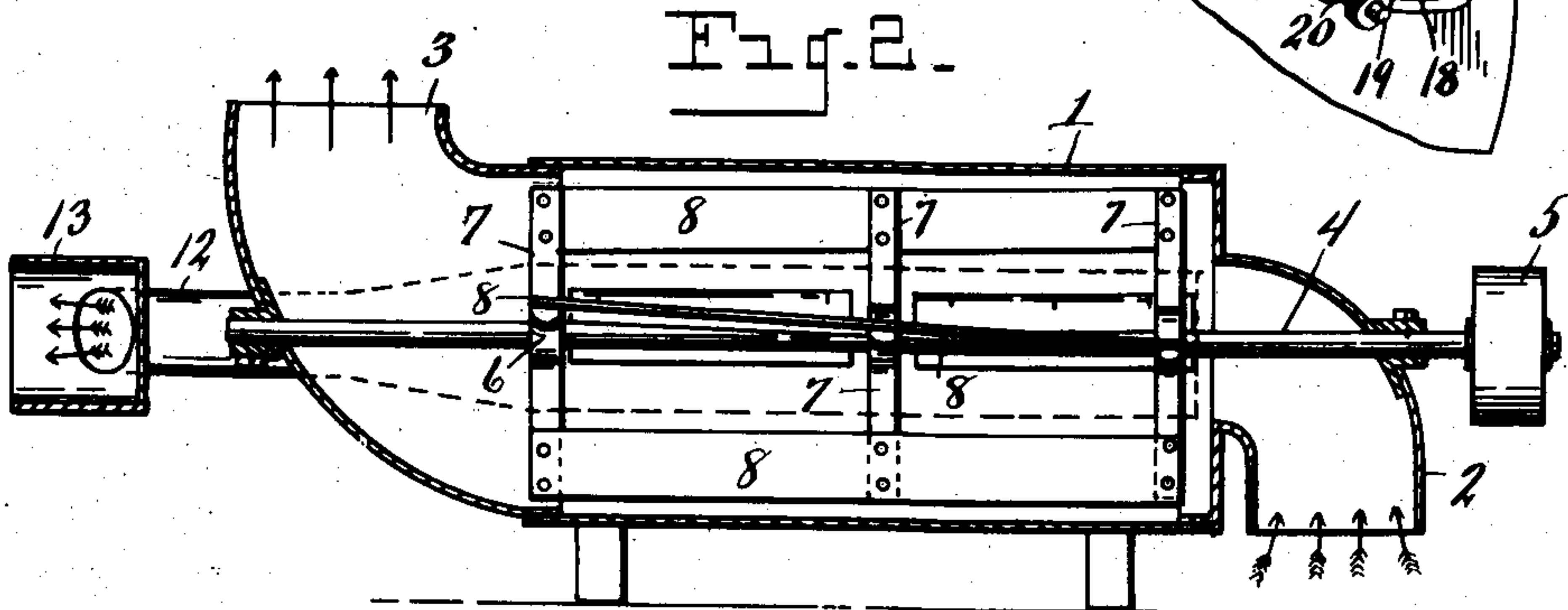
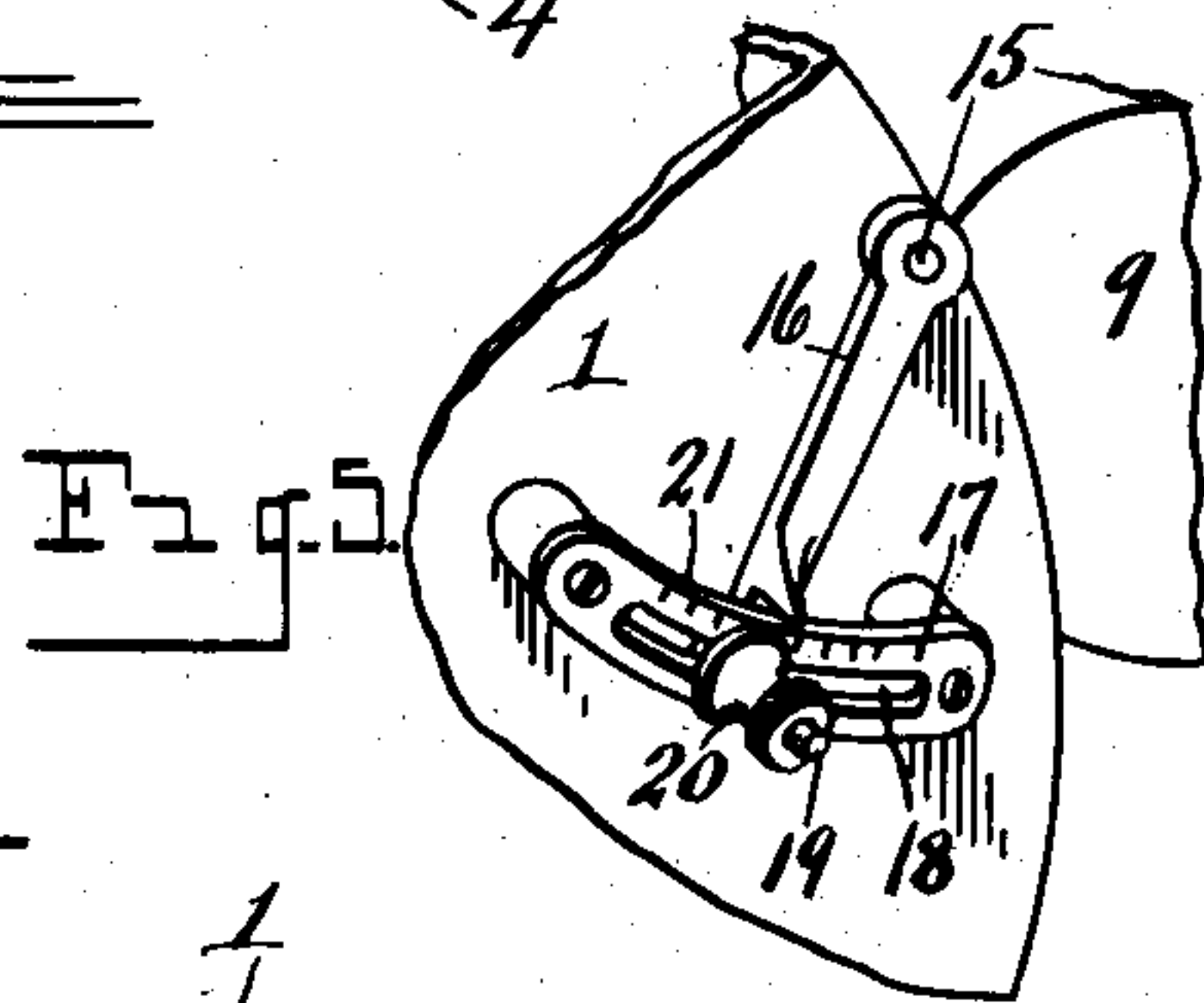
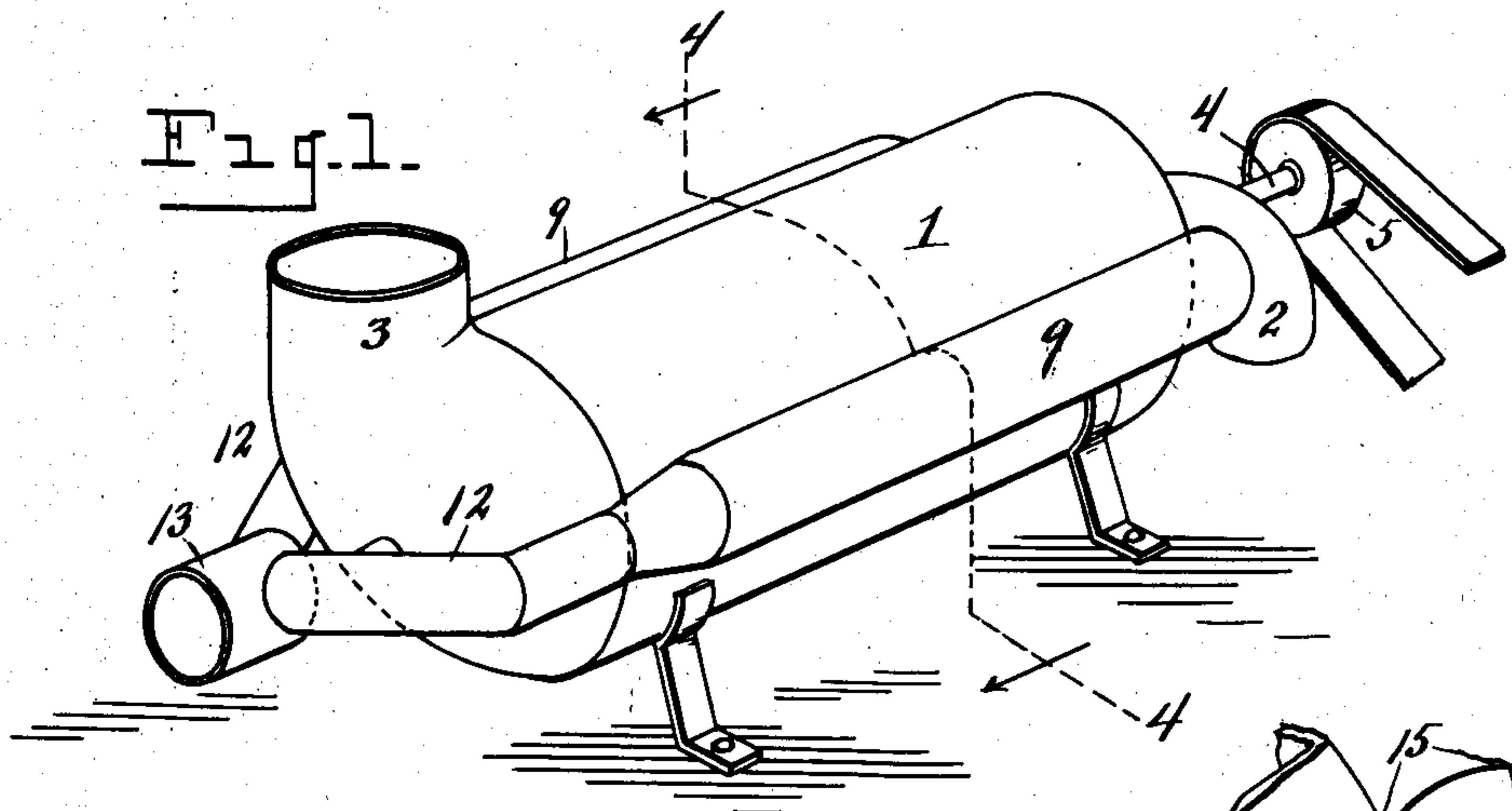


No. 834,997.

PATENTED NOV. 6, 1906.

R. J. RADIKE.
DUST REMOVER AND AIR PURIFIER.

APPLICATION FILED APR. 21, 1906.



Witnesses. Fig. 4.
O. B. Baenziger.
J. G. Hewlett.

Fig. 3. Inventor.
Richard J. Radike.

By E. Wheeler & Co. Attys

UNITED STATES PATENT OFFICE.

RICHARD J. RADIKE, OF ST. CLAIR, MICHIGAN.

DUST-REMOVER AND AIR-PURIFIER.

No. 834,997.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed April 21, 1906. Serial No. 313,087.

To all whom it may concern:

Be it known that I, RICHARD J. RADIKE, a citizen of the United States, residing at St. Clair, in the county of St. Clair, State of Michigan, have invented certain new and useful Improvements in Dust-Removers and Air-Purifiers; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 the figures of reference marked thereon, which form a part of this specification.

This invention relates to a dust-remover and air-purifier; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is provide simple and efficient means for separating dust, smoke, and other foreign substances from the air and maintaining the air in circulation throughout a room or building, the device being also applicable for the removal of carbon from the caloric current or flue-gases from furnaces. The above object is attained by the structure illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an apparatus embodying my invention. Fig. 2 is a central longitudinal section therethrough. Fig. 3 is an end elevation. Fig. 4 is a transverse section as on dotted line 4 4 of Fig. 2. Fig. 5 is a fragmentary view in perspective, showing one of the arms which control the dampers within the separating-cylinder.

Referring to the characters of reference, 1 designates a cylindrical body or shell of the required diameter having at one end an intake-pipe 2, which communicates centrally with the interior of the cylinder through an opening in the end thereof and having at the other end an air discharge or outlet pipe 3. When used for the purpose of removing dust and impurities from the air in a building, the intake-pipe 2 will be turned downwardly and the outlet-pipe 3 will be turned upwardly, so that the cleansed air may be discharged into the room and the dust-laden and impure air may be drawn into the separator from a point adjacent to the floor.

Extending longitudinally of the separating-cylinder and journaled at its opposite ends in suitable bearings is a shaft 4, having

on one end a pulley 5, through the medium of which it may be rotated from any suitable source of power. Fixed to the shaft 4 are a plurality of spiders 6, having radial arms 7, to which are secured the longitudinally-extending blades 8, forming a fan within the cylinder parallel with the axis thereof. The spiders are so positioned upon the shaft as to cause the blades to stand spirally, whereby by the rotation of the fan formed by the blades and spiders the air will be carried longitudinally through the separating-cylinder and caused to whirl rapidly therein. Located on opposite sides of the separating-cylinder are the dust-receiving tubes 9, which extend longitudinally and which communicate with the cylinder through the longitudinally-extending openings 10, through the wall thereof. The rear ends of the tubes 9 are closed, as shown at 11 in Fig. 3, while the forward ends thereof are connected by means of the pipes 12 with the dust-discharge pipe 13, which may be carried to any suitable receptacle.

Controlling the openings 10, which extend longitudinally of the separating-cylinder, are the dampers 14, which are hinged in said openings upon the longitudinally-extending rods 15, whose ends project through the end of the cylinder and carry the arms 16. By swinging said arms the rods 15 are actuated to open and close the dampers accordingly as conditions may require. The outer ends of the arms 16 lie under a graduated circle-bar 17, (see Fig. 5,) having a curved slot 18 therein, through which passes a threaded stem 19, that is secured in the end of said arm and receives the knurled nut 20, which may be screwed against the face of the circle-bar to lock the arm 16 against movement. The scale 21 on the circle-bar indicates the extent to which the damper is opened.

In the operation of this apparatus the rotation of the shaft 4 will cause the fan-blades to expel the air from the cylinder, thereby drawing into the cylinder through the pipe 2 a current of air which is directed centrally therein and which by the action of the rotary blades is thrown outwardly from the center, whereby any foreign particles of greater specific gravity than the air will be driven outwardly by centrifugal force against the wall of the cylinder and caused to whirl around within the cylinder in contact with the wall thereof. By this arrangement the dust particles and heavier foreign substances

are directed by the inwardly-extending dampers 14 through the openings 10 into the dust-receiving tubes 9, through which said particles are carried by a current of air which also passes into said tubes outwardly into the dust-receiving pipe 13; while the main portion of the air freed from the dust and heavier foreign substances is discharged into the room through the pipe 3. The operation of the machine in this respect is so sensitive that gases of greater specific gravity than air may be separated therefrom and the purified air discharged into the room while said gases are conducted through the tubes 9 and pipes 12 into the discharge-pipe 13.

By the use of this apparatus smoke may be separated from the caloric current from furnaces by receiving said current into the pipe 2 and discharging it into the stack through the pipe 3, in which case the apparatus will be located in a vertical position, the carbon and heavier gases being separated by the rotary fan from the heated air and directed into the receiving-tubes and discharge-pipe. It will be noted that the fan-blades have but little lead whereby the air in its longitudinal travel through the separating-cylinder moves slowly, but is caused to rotate rapidly therein, allowing ample time for the separation of the heavier foreign particles from the air by centrifugal force before it passes from the cylinder.

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

1. In a dust-separator, the combination of the separating-cylinder, a rotary fan journaled therein and extending longitudinally thereof parallel with the axis of said cylinder, a dust-receiving tube exterior to the cylinder, the wall of the cylinder having an opening communicating with said tube, means for regulating said opening, an intake-pipe communicating centrally with one end of said

cylinder, and an air-discharge pipe leading from the opposite end thereof.

2. In a dust-separator, the combination of the cylinder, a fan journaled therein said cylinder having an opening in the wall thereof, a dust-tube communicating with said opening, a damper for directing the dust from the cylinder into said tube, a discharge-pipe leading from the forward end of the dust-tube, an intake-pipe communicating centrally with the fan at one end of the cylinder, and an air-discharge pipe leading from the opposite end of the cylinder.

3. In a dust-separator and air-purifier, the combination of the cylinder, a fan journaled in the cylinder having spiral blades, a plurality of dust-tubes parallel with the cylinder, the wall of the cylinder having openings communicating with said tubes, means for directing the dust through said openings, a common dust-discharge pipe with which the dust-tubes are connected, an air-intake and an air-exhaust pipe communicating respectively with the opposite ends of the cylinder.

4. In a dust-separator and air-purifier, the combination of the cylinder, a fan journaled in the cylinder having spiral blades, a relatively small intake-pipe communicating centrally with one end of the cylinder, a relatively large discharge-pipe leading from the opposite end of the cylinder, dust-tubes extending longitudinally of the cylinder, the wall of the cylinder having openings which communicate with said tubes, movable dampers controlling said openings, means for moving said dampers, and a discharge-pipe communicating with the discharge ends of the dust-tubes.

In testimony whereof I sign this specification in the presence of two witnesses.

RICHARD J. RADIKE.

Witnesses:

M. C. BLOOD,
GEO. W. EWING.