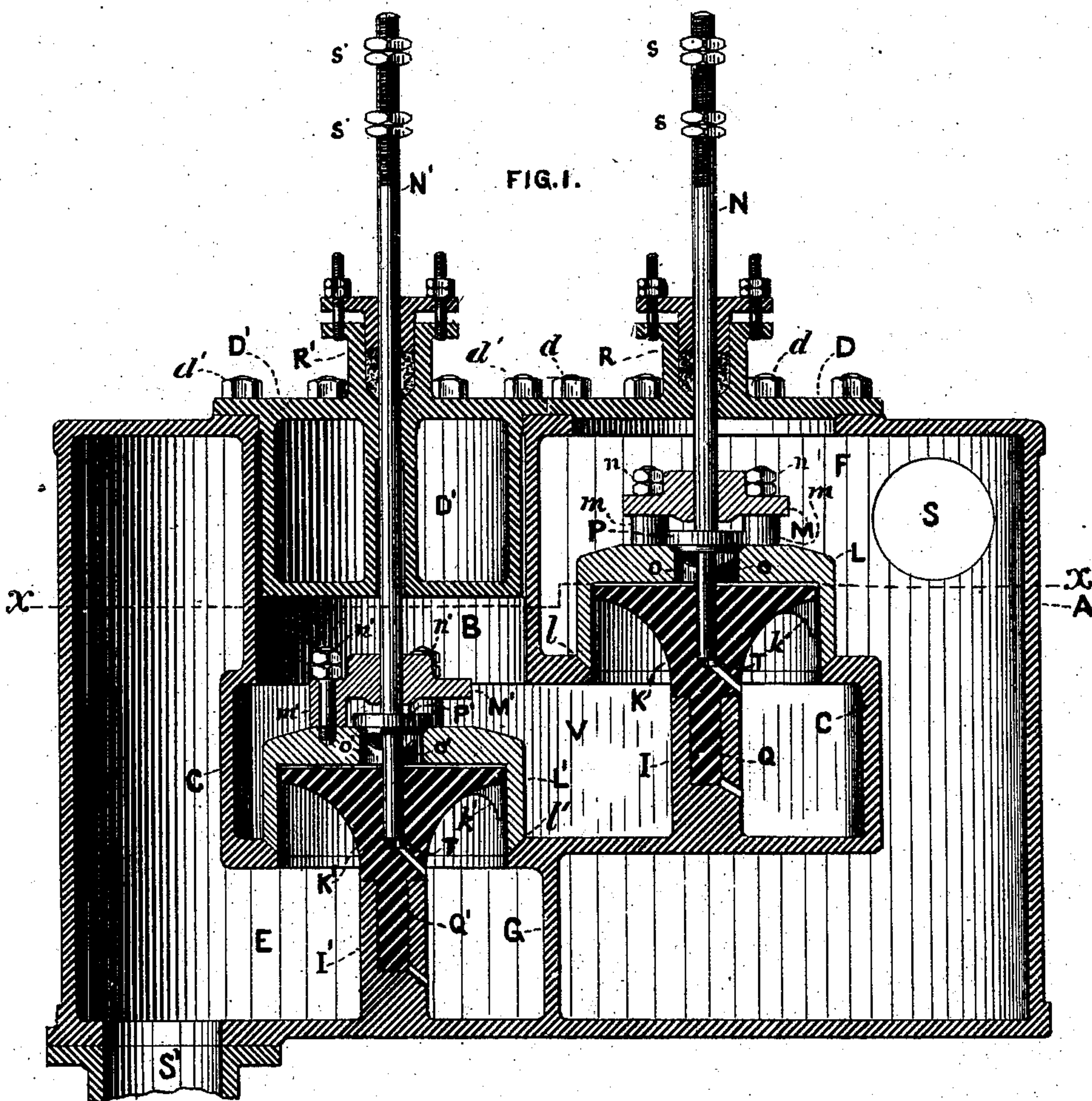
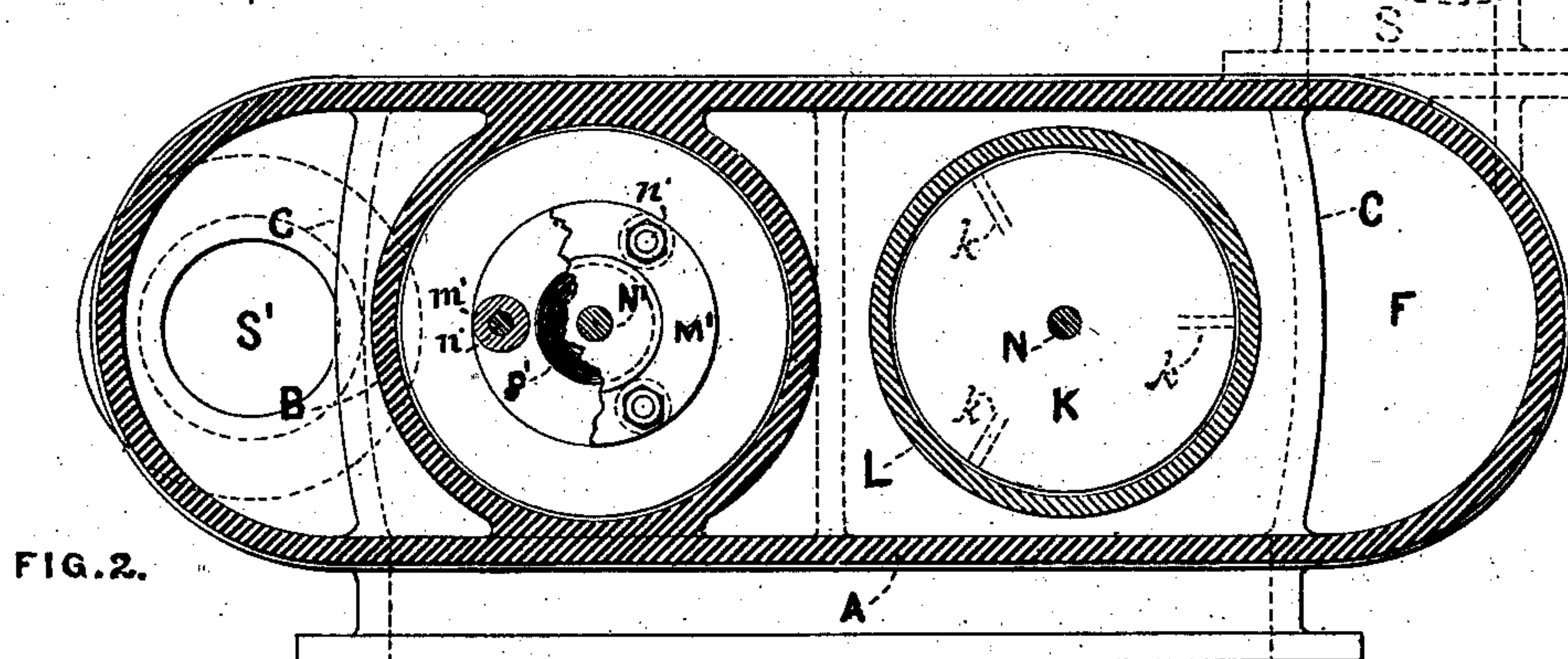


(No Model.)

A. WANICH.
BALANCE PUPPET VALVE.

No. 292,604.

Patented Jan. 29, 1884.



WITNESSES.

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ALEXANDER WANICH, OF PHILADELPHIA, PENNSYLVANIA.

BALANCE PUPPET-VALVE.

SPECIFICATION forming part of Letters Patent No. 292,604, dated January 29, 1884.

Application filed April 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WANICH, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain
5 new and useful Improvements in Balance Puppet-Valves; and the following is a specification of my improvements, reference being had to the accompanying drawings, wherein—

Figure 1 represents a central vertical section through a steam-chest provided with inlet and exhaust valves embodying my invention, and Fig. 2 is a horizontal section through such chest on the line *xx* of Fig. 1.

The present invention is an improvement
15 upon the valve for which Letters Patent No. 113,600 were granted to me under date of April 11, 1871; and has for its objects the facilitating of the operation of the valve, and the affording of a means of relief against back-pressure,
20 which latter, under certain circumstances, may be caused by ingress of water.

In the drawings, A is the shell or casing of the steam-chest, whose interior is divided by partitions C G into three compartments, one
25 of them, F, communicating by a port, S, with the boiler, another, E, by a similar port, S', with the exhaust-pipe, while the intermediate one, V, leads to the cylinder. The openings *l l'*, by which communication is effected between the compartments, are beveled, as
30 shown, to form seats for the inlet and exhaust valves L L', respectively. As these valves are similar in construction a detailed description of one will suffice. The inlet-valve L is cup-shaped, as shown, and has a central opening,
35 *o*, controlled by the small pilot-valve P, whose stem N passes through a stuffing-box, R. A plate, M, is secured upon the valve L by means of screws *n*, passing down through the legs *m*,
40 and an opening is formed in the plate M just large enough to permit the free working of the stem N, but not the passage of the pilot-valve P. Beneath the valve L is a table, K, whose
45 periphery fits closely within the depending rim of the cup, and having wings *k*, which serve as guides for the vertical movements thereof. The table K is mounted upon a stem,
Q, which slides freely in a vertical direction in a socket within the standard I, cast upon or
50 otherwise secured to the casing A. The height of the table is such that when the valve L is

closed down upon its seat *l* a small space is left between the top of the table and the adjacent flat bottom of the cup, while, as before stated, the contact between the periphery of
55 the table and the depending rim of the cup is snug, though not absolutely steam-tight. The table K has an opening, T, which receives the lower end of the valve-stem N, and forms a guide therefor. The corresponding parts of
60 the exhaust-valve L' are indicated by the same letters of reference as those above given, but having a dash or prime mark to distinguish them. Thus in the exhaust-valve L' the stem
is lettered N', the pilot-valve P', the table K',
65 &c. The valves are fitted in place and access to them is had through openings in the top of the steam-chest, which are closed by means of the covers D D', secured by screw-nuts *d d'*.

The operation of the valves is as follows:
70 When it is desired to admit steam from the compartment F into the central compartment V, the small pilot-valve P is raised slightly, and the steam rushes into the space between the top of the table K and bottom of the cup
75 L, thus nearly equalizing the pressure on both sides of the latter, the only access upon the outside being an amount which corresponds to the area of cross-section of the depending rim. The continued upward movement of the pilot-
80 valve P brings it in contact with the plate M, by means of which it readily lifts the nearly balanced valve L from its seat *l*, thus permitting the inlet of steam into the chamber V and cylinder. The reverse movement of the pilot-
85 valve P closes the valve L, and the exhaust from the chamber V into the chamber E is effected by raising the stem N' of the pilot-valve P', when a series of operations takes place exactly similar to that described in the case of
90 the inlet-valve. The comparatively small space which has to be filled on the opening of the pilot-valve to effect the balancing of the main valve renders the operation very rapid. If, as sometimes occurs under conditions where
95 these valves are used, an excessive back-pressure takes place in the cylinder or chambers, to which it leads from the rise of water therein, its pressure is automatically relieved by the rise of the table K from its seat in the stand-
100 ard I, the valve being lifted along with it, and thus all danger of fracture is prevented.

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

1. The combination, with the cup-shaped
5 valve L and its pilot-valve, of a table arranged within said valve L, substantially in the manner set forth.

2. The combination, with the valve L, of the

table K, provided with the stem Q, and the standard I, provided with a socket, whereby the table is permitted to move vertically, substantially as and for the purposes set forth.

ALEXANDER WANICH.

Witnesses:

WM. H. MYERS,

J. WALTER DOUGLASS.