

W. A. BOYDEN.
Metallic Piston-Packing.

No. 143,956.

Patented Oct. 28, 1873.

FIG. 1

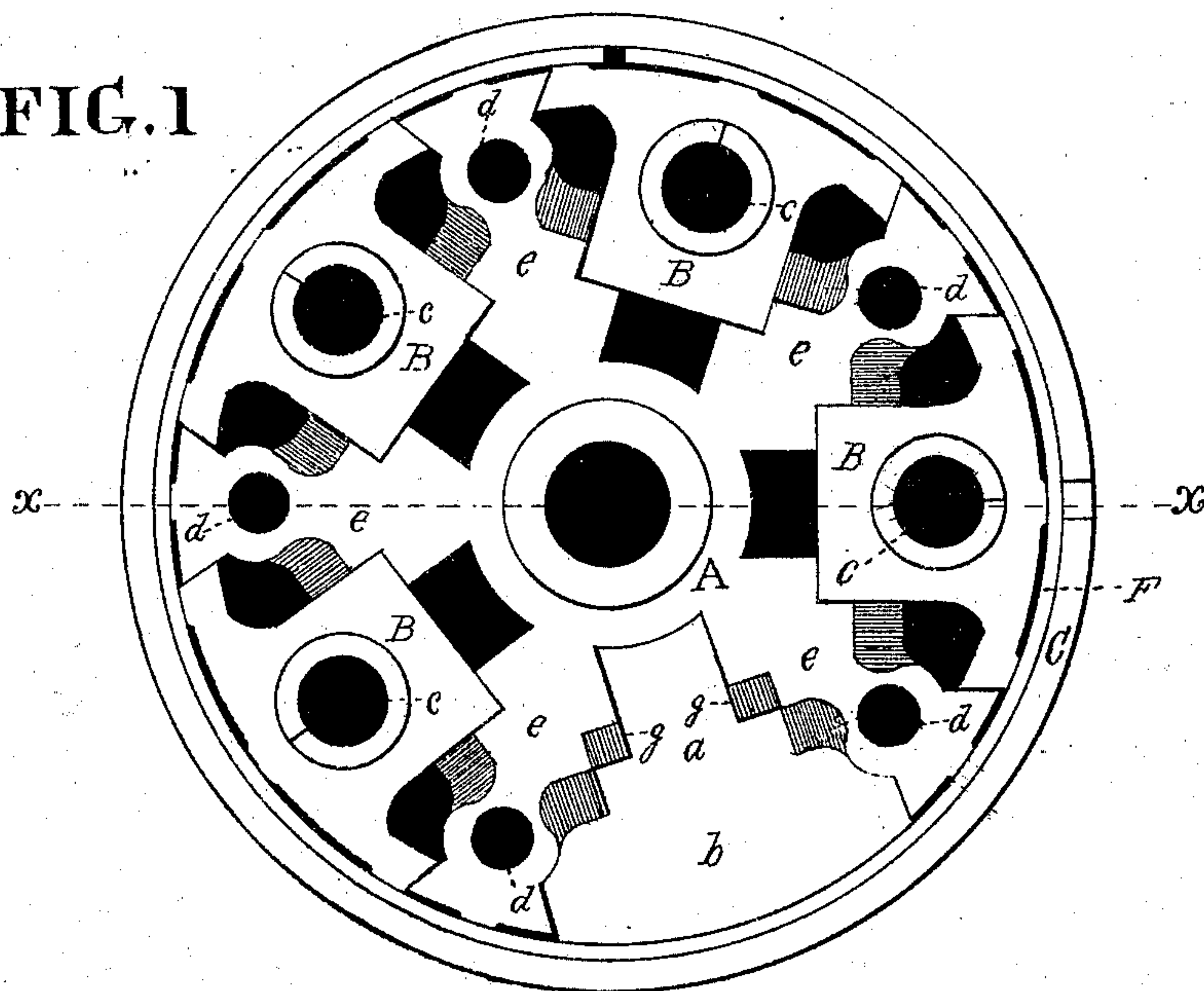


FIG. 2

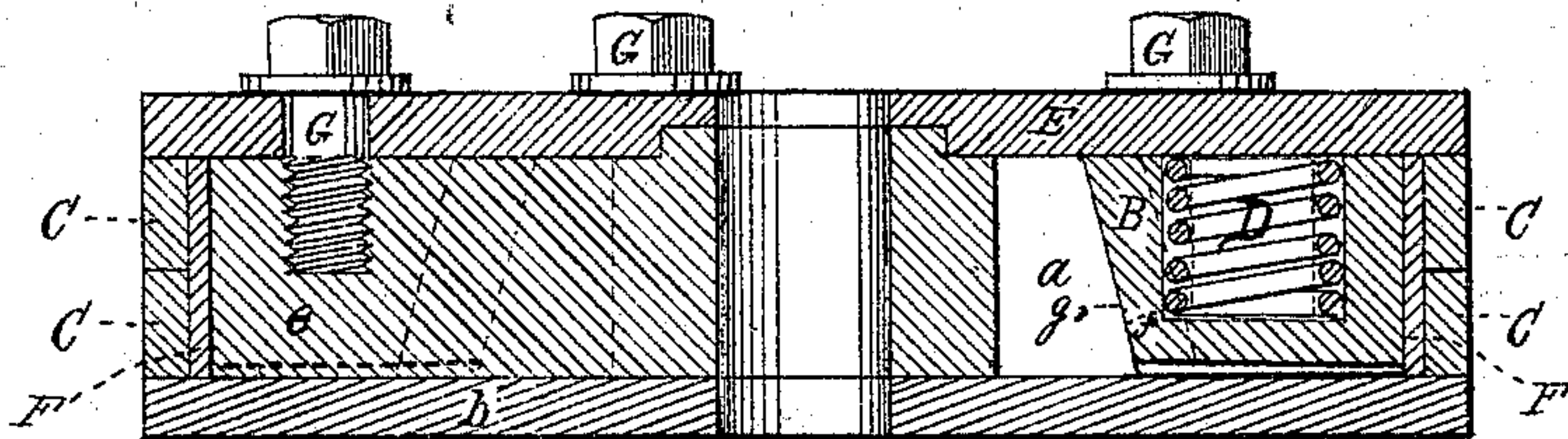
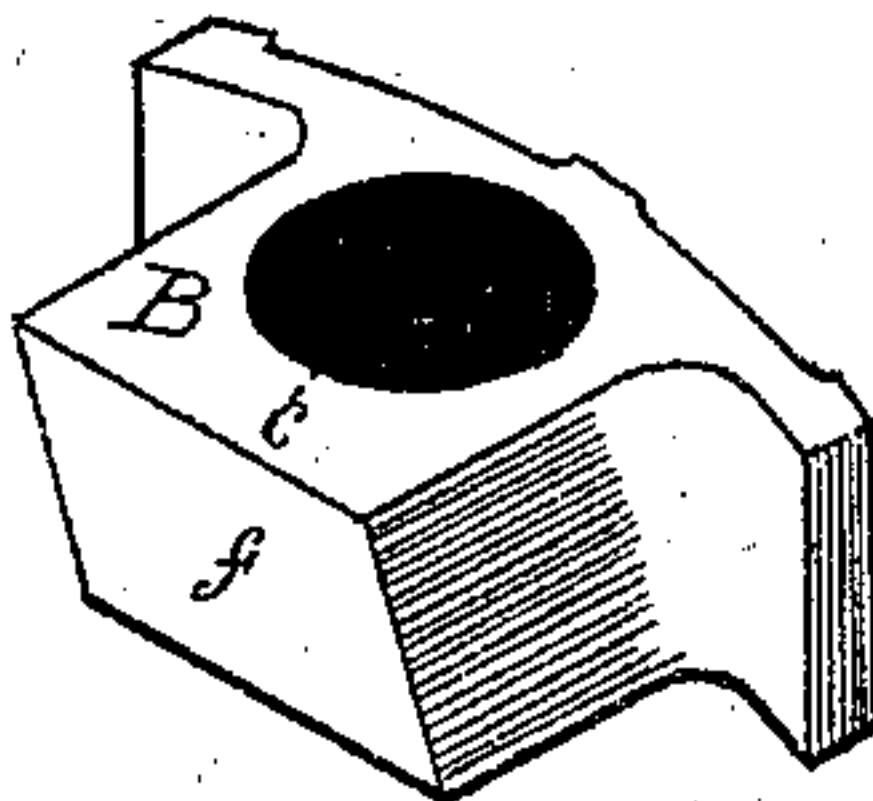


FIG. 3



Witnesses
Thomas J. Bewley.
Jno. G. Kerstan.

Inventor:
William A. Boyden.
By His Attorney:
Stephen A. Stick.

UNITED STATES PATENT OFFICE.

WILLIAM A. BOYDEN, OF HARRISBURG, PENNSYLVANIA.

IMPROVEMENT IN METALLIC PISTON-PACKINGS.

Specification forming part of Letters Patent No. **143,956**, dated October 28, 1873; application filed September 20, 1873.

To all whom it may concern:

Be it known that I, WILLIAM A. BOYDEN, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented an Automatic Metallic Piston-Packing, of which the following is a specification:

My invention relates to a series of wedges arranged in openings of the piston-head at its periphery, with their outer edges bearing against the inner periphery of the inner packing-ring, and their inner and inclined edges against corresponding inclines of the said openings, in such a manner that the steam, pressing upon the piston-follower, forces it upon the outer ends of wire springs which are inserted in, and project outward from, said wedges, whereby there is an automatic action upon the wedges, so as to press the packing outward against the bore of the steam-cylinder at all points of the circumference of the piston, as hereinafter fully described.

Figure 1 is a view of the interior of a piston having the improved packing, one of the wedges B and the follower E being removed. Fig. 2 is a cross-section at the line *x x* of Fig. 1. Fig. 3 is a perspective view of one of the wedges B.

Like letters of reference in all the figures indicate the same parts.

A is the piston-head, which has a series of openings, *a*, at its periphery, extending to the plate *b*, in which are placed wedges B, for the automatic adjustment of the packing-ring C. One of the wedges is shown in detail in Fig. 3. The wedges have openings *c*, which contain wire springs D, upon the outer ends of

which rests the follower E. The follower is held in place by means of screws G, which enter the tapped holes *d* of the radial arms *e* between the wedge-openings *a* of the piston-head A.

The operation is as follows: The pressure of the springs D upon their seats causes the inclines *f* of the wedges B to slide over the duplicate inclines *g g* in the openings *a* of the piston-head A, whereby the wedges advance outward from the center thereof, and thus press with their outer surfaces against the intermediate split ring F, which forces the split packing-ring C against the bore of the cylinder automatically, according to the pressure of the steam, taken in connection with the degree of inclination of the wedges, the inclines being made on any desired angle.

It must readily appear that the packing-ring C is automatically adjusted to the cylinder as it wears away by the action of the steam on the follower, and in accommodation to any irregularity of the cylinder, either longitudinally or in its cross-area, as each wedge B acts independently of all the others.

I claim as my invention—

The series of wedges B, provided with springs D, combined and arranged with the piston-head A, having openings *a* and inclines *g*, the follower E, packing-ring C, and intermediate ring F, substantially in the manner and for the purpose set forth.

WM. A. BOYDEN.

Witnesses:

H. SHELLENBERGER,
DANIEL SNIDER.