2 Sheets--Sheet 1.

J. B. SWEETLAND.

Improvement in Oscillating Engines.

No. 128,766. Patented July 9, 1872.

Fig. 1.

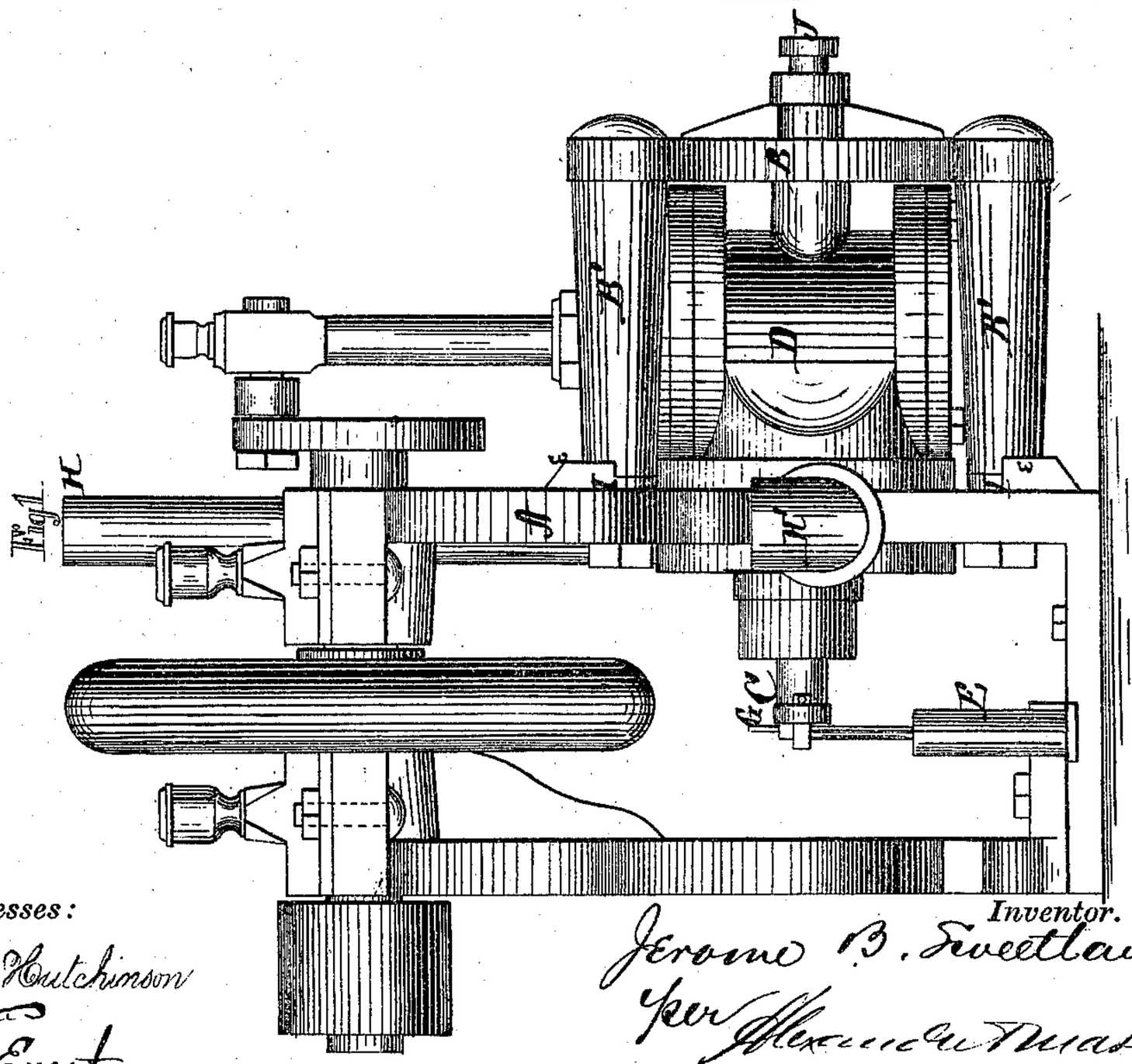
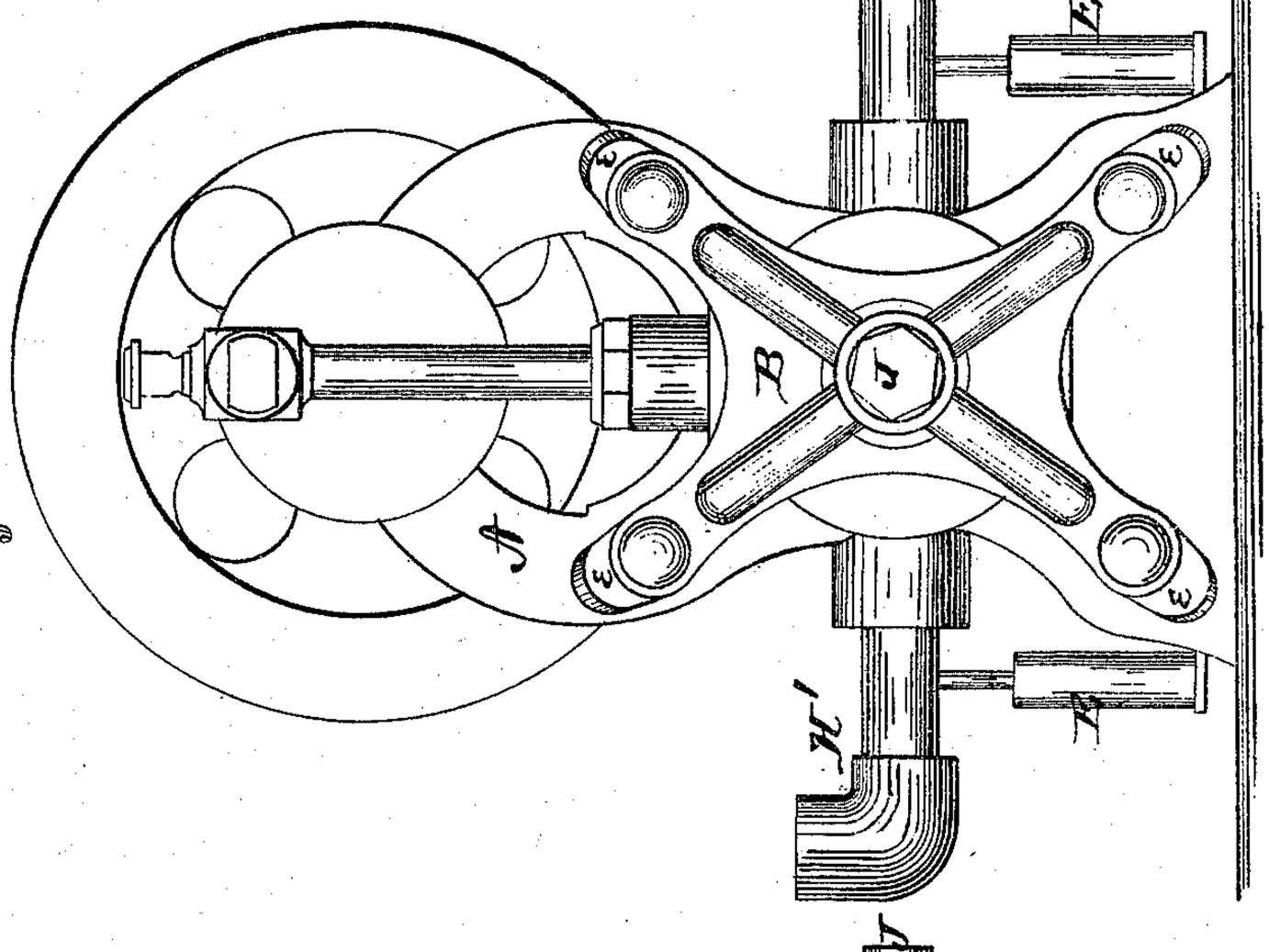


Fig. 2.



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2 Sheets--Sheet 2.

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Fig. 3.

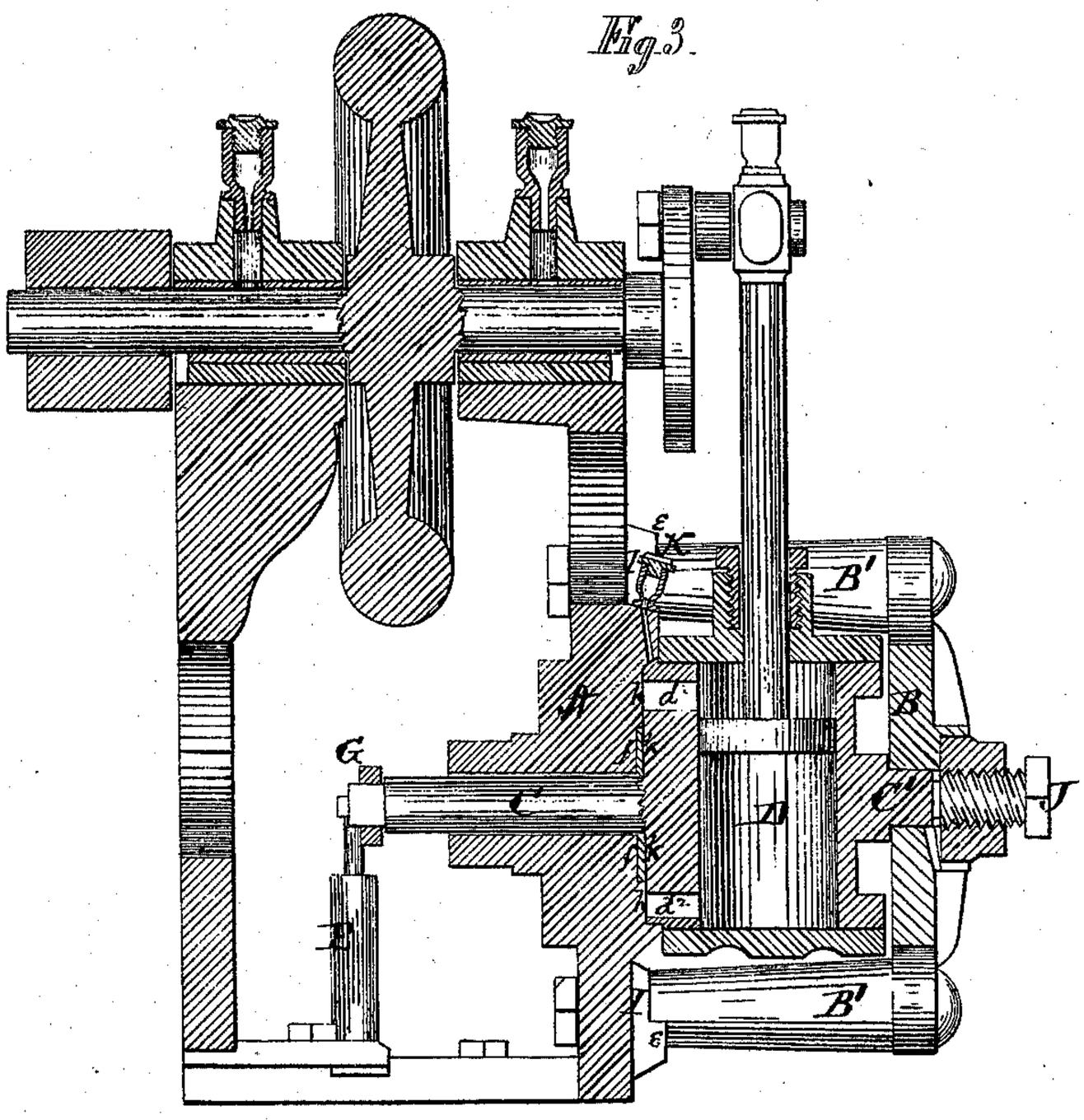


Fig. 6.

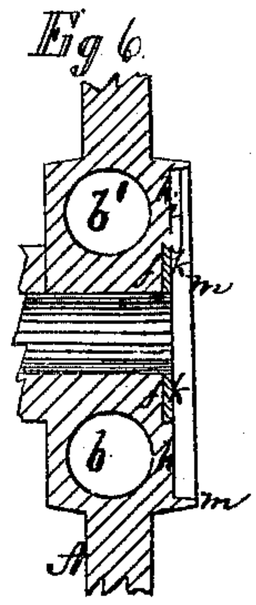


Fig. 4.

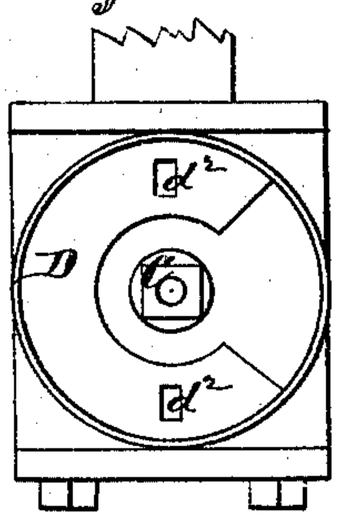
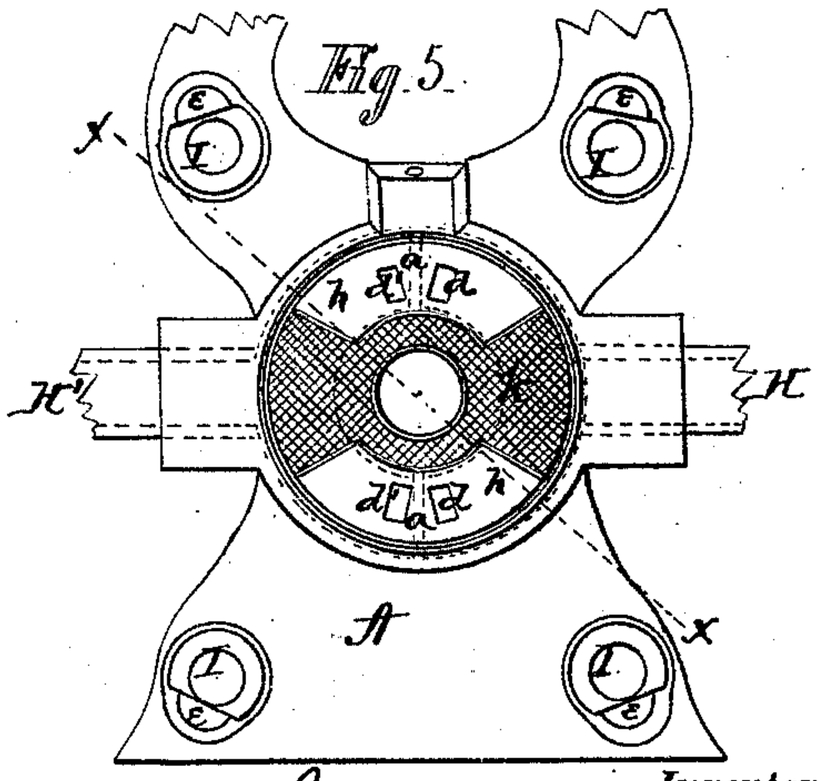


Fig. 5.



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UNITED STATES PATENT OFFICE.

JEROME B. SWEETLAND, OF PONTIAC, MICHIGAN.

IMPROVEMENT IN OSCILLATING STEAM-ENGINES.

Specification forming part of Letters Patent No. 128,766, dated July 9, 1872.

To all whom it may concern:

Be it known that I, JEROME B. SWEETLAND, of Pontiac, in the county of Oakland and in the State of Michigan, have invented certain new and useful Improvements in Steam-Engines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of an oscillating engine, as will be hereinafter more fully set forth.

In order to enable others, skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a front view, and Fig. 2 a side elevation, of my engine. Fig. 3 is a longitudinal vertical section of the same. Fig. 4 is a view of the inner face of the oscillating cylinder. Fig. 5 is a view of the corresponding face of the standard, and Fig. 6 is a section of the standard taken through line *x x*, Fig. 5.

A represents the main standard, and B the binder attached to the same, in which the trunnions *c c'* of the oscillating cylinder D have their bearings. The trunnion C is extended through the standard A, and receives upon its end a lever, G, which thus by the motion of the cylinder receives an oscillating motion. This lever G being connected with one or more pumps, E, said pump or pumps, it will be seen, may be worked by the motion of the oscillating cylinder, or any work may be performed where an oscillating lever is required. Steam passes into the standard A through the pipe H, and exhausts through the pipe H'. A passage is made within the standard for the steam from the pipe H around the entire center to the pipe H', with the exception of two partitions, *a a*, one in the center of the passage at the top, and the other at the bottom, forming two separate passages, *b* and *b'*, for the steam, each passage forming a semicircle, or nearly so. These passages may be made in any convenient shape. The object and advantages of coring the standard in this manner is, that the steam which is supplied by one pipe fills the whole opening or half-circle *b* to the partitions at the top and bottom, thus supplying both ports *d d* with steam as it oscillates; and in like manner the one pipe H' receives the exhaust steam from both ports d^1 d^1.

On the face of the standard are four places, I I, raised above the face, each of said elevations having a jog or projection, *e*, pointing outward. The object of these elevations, which may be of any height and number desired, is, that they may be faced off in the lathe without disfiguring the face of the standard; and the jogs or projections *e e*, when faced off in the lathe, will be on an exact circle from the center of the trunnion, so that when the legs B' B' of the binder B are also faced off in the lathe and put together it brings everything exactly square—that is, the two faces where the ports are will sit together snug and square. In the binder B is a set-screw, J, to operate against the end of the trunnion C, and hold the two faces firmly against each other. The face of the standard A is countersunk, and the seats, where the ports are, raised, as shown, at *f* and *h*, respectively, in Figs. 3 and 6, the countersink *f* forming a cup or receptacle to receive a pad or packing, *k*, of any suitable material. The object of this padding is to retain oil, so that the cylinder, in oscillating, wipes over the pad and oils that portion of the face that swings over, and as it oscillates the other way it wipes the oil from the face of the cylinder on to the opposite face, and prevents them from getting dry and cutting, which is almost impossible to prevent where two faces work together so closely. Oil is admitted to the pad *k* by means of a groove or channel, *i*, shown in Fig. 6, cut above the upper edge of the face and on the inner side of a projecting rim or flange, *m*, surrounding the face, said channel *i* communicating with an opening in connection with an oil-cup, K, on top. The rim or flange *m* around the face retains oil and excludes dust and dirt. The side of the cylinder D against the standard A is cut with a round face, which may be either an entire round circle or cut out on one or both sides, as shown in Fig. 4. d^2 d^2 are the ports in said face making communication with the interior of the cylinder.

In building large engines the portion of the

standard which is cored out, and through which the trunnion C passes, will, for convenience sake, be made separate and bolted to the main standard.

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

1. The standard A provided with inlet H and outlet H′, and cored out, as described, to form the half-circular passages *b b′* with partitions *a a* and ports *d d* and *d*^{1} *d*^{1}, all substantially as and for the purposes herein set forth.

2. The combination of the standard A with raised pieces I I having jogs or projections *e e*, and the binder B provided with legs B′ B′ and set-screw J, all substantially as and for the purposes herein set forth.

3. The face of the standard A provided with countersink *f* and raised seat *h*, substantially as and for the purposes herein set forth.

4. The rim or flange *m* surrounding the face of the standard A, and provided with an interior groove or channel, *i*, communicating with the oil-cup K, substantially as and for the purposes herein set forth.

5. The combination of the standard A having passages *b b′*, ports *d d′* and H H′, raised pieces I I, countersink *f*, and flange *m*, with oil-passage *i*, the binder B with legs B′ B′, oscillating cylinder D, packing *k*, extended trunnion C, and lever G, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of April, 1872.

JEROME B. SWEETLAND.

Witnesses:
ADOLPHUS W. BURTT,
JUNIUS TEN EYCK.