

R. Knowlton,

Washing Machine,

N^o 34 861.

Patented Apr. 1, 1862.

Fig. 1.

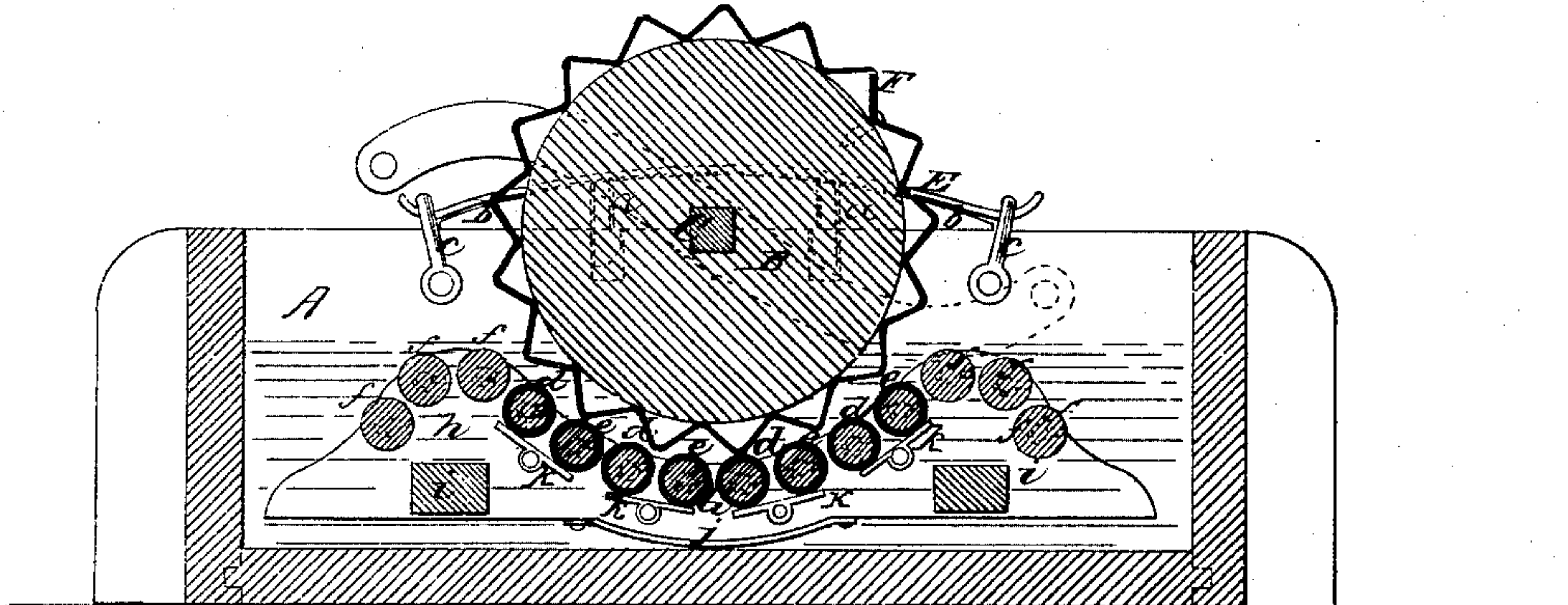
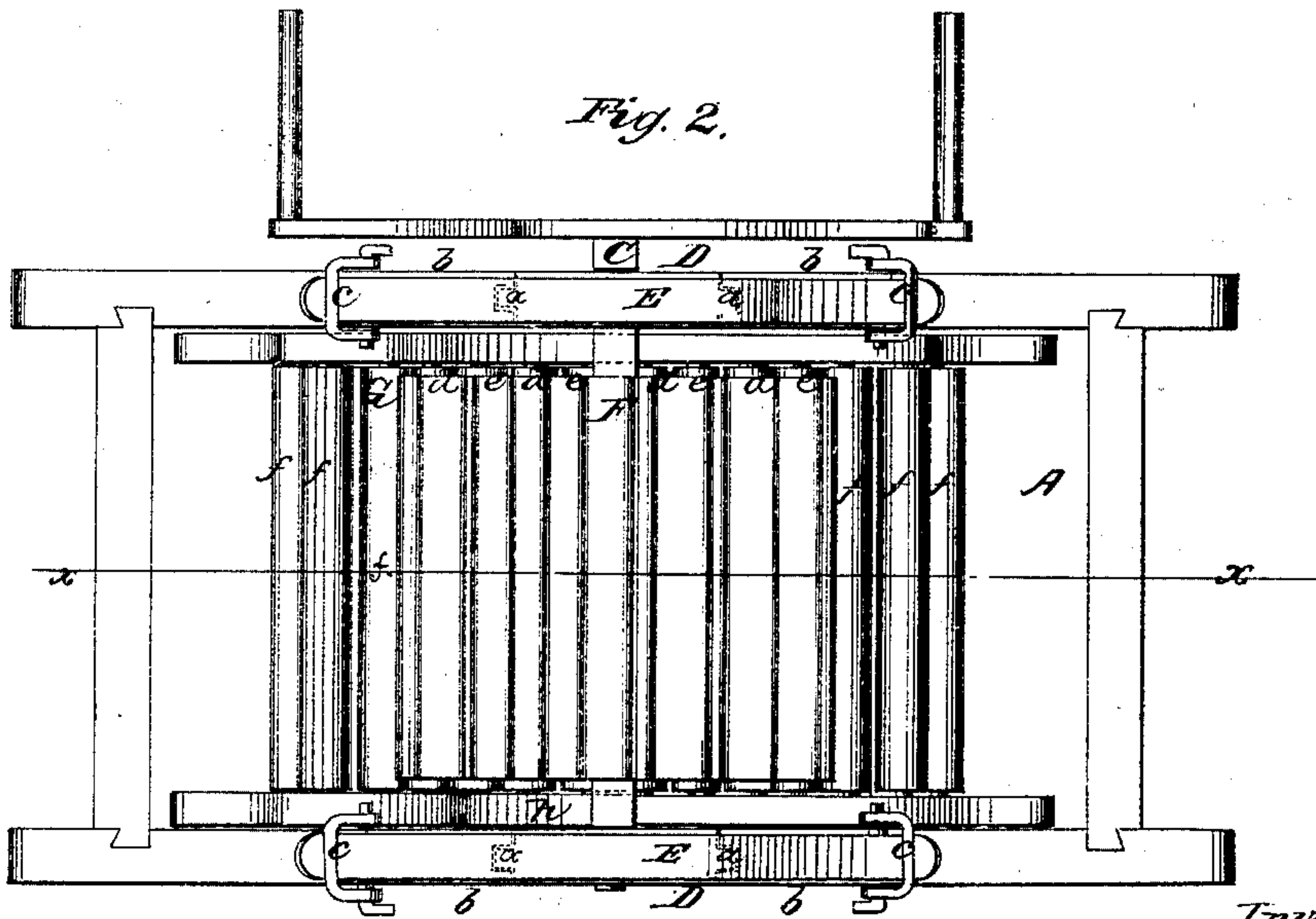


Fig. 2.



Witnesses.
J. W. Coombs
Geo. Reed

Inventor.
R. Knowlton
per Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

RENSELLAER KNOWLTON, OF EUREKA, ILLINOIS, ASSIGNOR TO HIMSELF AND JEREMIAH LAWS, JR., OF SAME PLACE.

IMPROVED WASHING-MACHINE.

Specification forming part of Letters Patent No. 34,861, dated April 1, 1862.

To all whom it may concern:

Be it known that I, RENSELLAER KNOWLTON, of Eureka, in the county of Woodford and State of Illinois, have invented a new and Improved Clothes-Washing Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to a new and improved clothes-washing machine of that class in which a reciprocating rotating cylinder having a corrugated periphery is used, in connection with a concave beneath it formed of a series of small rollers.

The invention consists, first, in arranging the concave in such a way that an oscillating motion will be given it as the cylinder is rotated, and the clothes acted upon between the cylinder and concave, whereby the clothes are subjected to a more efficient rubbing process than hitherto, and also made to pass back and forth between the cylinder and rollers with greater facility.

The invention consists, second, in having the periphery of the cylinder covered with zinc and the rollers of the concave covered with zinc and copper, the zinc and copper rollers being placed alternately in the concave and connected in pairs, substantially as hereinafter fully shown and described, whereby a galvanic action is developed during the operation of the machine, and the clothes more readily cleaned than by the simple rubbing process alone.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular box, which may be constructed of wood of any suitable dimensions, and B is a cylinder, the axis or shaft C of which is fitted in bearings D D, which is provided each with a vertical guide-pin *a* at each end, the pins fitting in holes in the sides of the box A, and also in grooves in ledges or

blocks *b b*, attached to each side of the box. This arrangement admits of the bearings D D being kept in proper position while rising and falling to a certain required extent.

E E are springs, which are placed one over each bearing D and its blocks *b b*, and have their ends secured to the sides of the box A by means of loops *c*, as shown in both figures. The springs E E have a tendency to keep the bearings D D pressed down on the sides of the box A to their fullest extent.

The cylinder B may be of wood, and it extends nearly the whole width of the box A, and is covered with a corrugated zinc plate F, the form of the corrugations being shown clearly in Fig. 1.

Within the box A and underneath the cylinder B there is placed a concave G. This concave is formed of a series of rollers *d e f*, the journals of which have their bearings in side plates *h h*, which are connected by cross-ties *i i*. The side plates *h h* are of wood, and they bear against the inner sides of the box A, and at the center of the lower edge of each side plate *h* there is a curved projection *j*, and these projections serve as rockers for the concave. The central portion of the concave is of curved form, and it may be described as being a portion of the inner side of a cylinder having the same axis as the cylinder B. The concave, however, may vary slightly from this form so as to assume the position described when there is a space between the concave and cylinder of three-eighths or a half inch. The upper or face side of the concave, therefore, is concentric with the cylinder B, and this portion of the concave is formed by the rollers *d e*, which are of wood, the rollers *d* being covered with zinc and the rollers *e* covered with copper. The rollers *d e* are placed in alternate position in the concave, so as to form pairs, which are connected at their inner sides by zinc straps or plates *k*. (See Fig. 1.)

The ends of the side plates *h h* are slightly curved in an inclined direction, as shown in Fig. 1, the lower parts of the ends projecting farther outward than the upper parts. Between these inclined ends of the side plates *h h* are placed the rollers *f*, which may be of wood and so placed that the two outermost rollers

f will be in an inclined plane which forms an obtuse angle with the plane which passes through the two uppermost rollers *f*. These planes are indicated by red lines in Fig. 1.

The operation is as follows: The box A is supplied with a requisite quantity of suds and the cylinder B is turned first in one direction and then in the other, the clothes to be operated upon being moved back and forth between the cylinder B and the rollers of the concave G. The pressure to which the clothes are subjected is due to the springs E E. The end rollers *f*, in consequence of having their journals fitted in the inclined ends of the side plates *h h*, admit of the clothes readily entering between the cylinder and concave G, and said concave, while the cylinder B is in operation, has a rocking motion imparted to it in consequence of the rockers *j*. This rocking or oscillating movement of the concave adds greatly to the efficiency of the rubbing action produced by the rotation of cylinder B and the rollers of the concave, as a variable or intermitting pressure is thereby produced. By the employment or use of the corrugated metal surface on cylinder B and the metal surfaces on the rollers *d e* of the

concave G a galvanic action or current is produced, which passes through the clothes, and, owing to its detergent properties, greatly assists in cleaning them.

I do not claim a reciprocating rotating corrugated cylinder with a concave provided with small rollers and placed underneath the cylinder, for the purpose specified; but

I do claim as new and desire to secure by Letters Patent—

1. The combination of the cylinder B with the concave G, the latter being provided with rollers, when said concave is arranged with rockers *j*, as shown, to admit of the rocking or oscillating of the concave under the action of cylinder B, as and for the purpose set forth.

2. Having the cylinder B and the rollers *d e* of the concave covered, respectively, with zinc and copper or other suitable metals, and arranged, substantially as shown, to produce a galvanic action during the operation of the machine, for the purpose specified.

RENSELLAER KNOWLTON.

Witnesses:

O. M. KENT,

A. M. MYERS.