

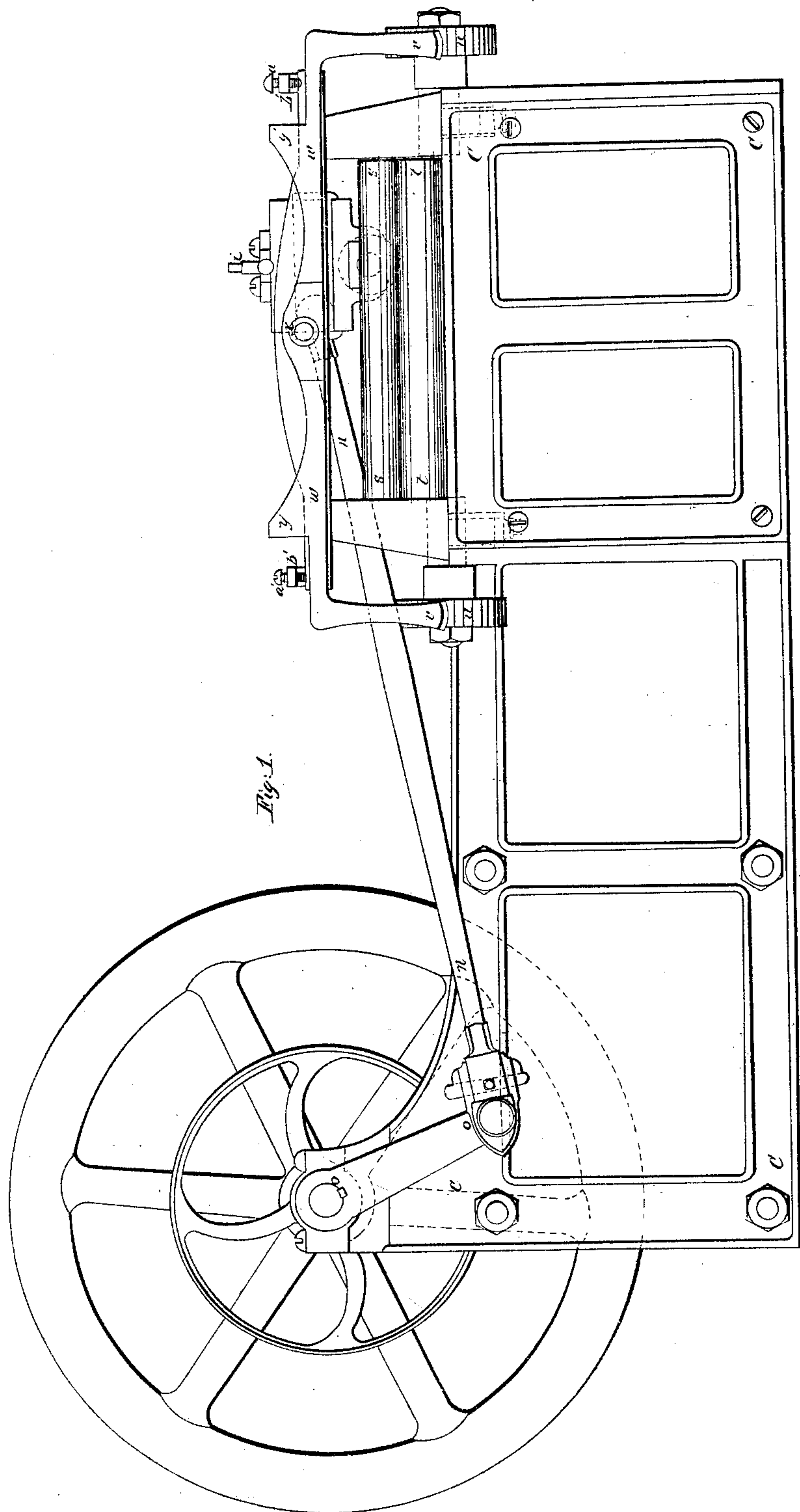
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3 Sheets—Sheet 1.

E. L. PERKINS.
MACHINE FOR POLISHING PAPER.

No. 11,837

Patented Oct. 24, 1854.



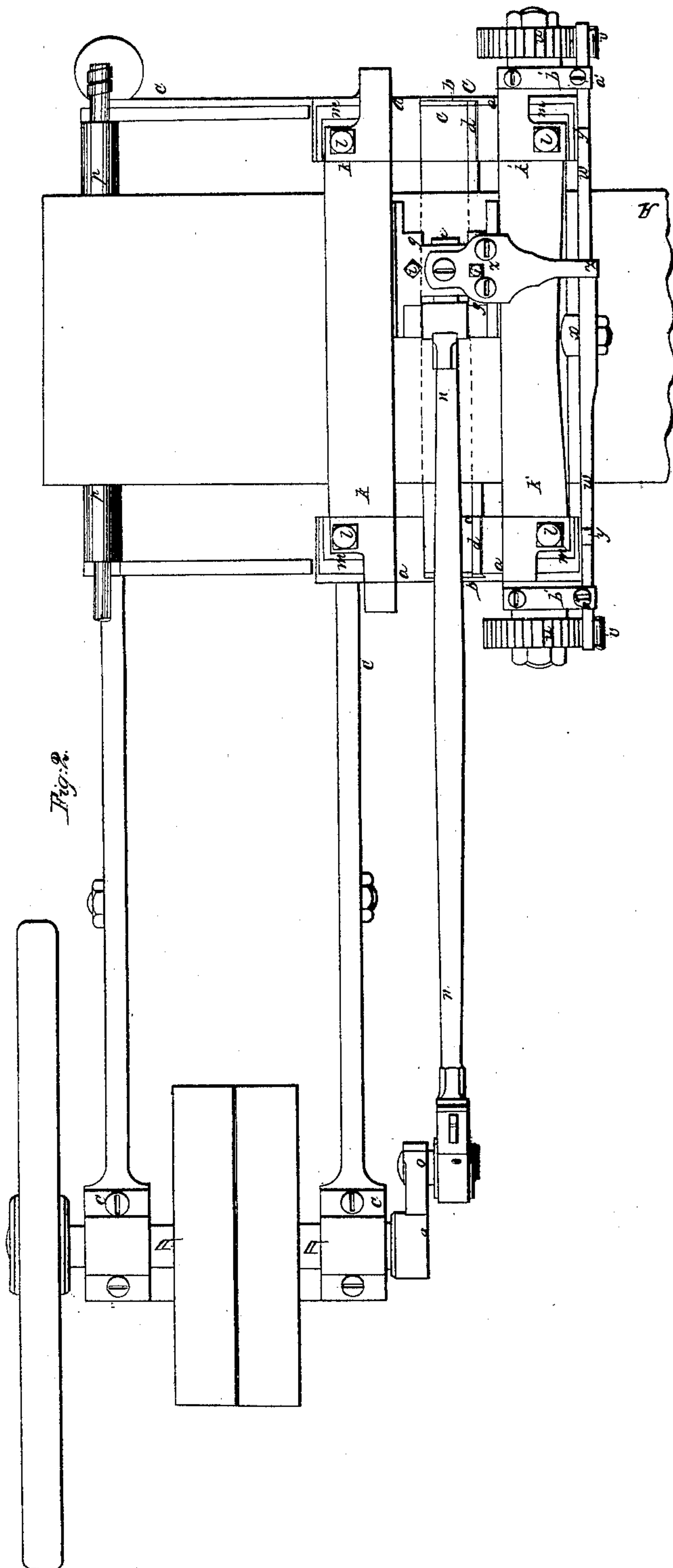
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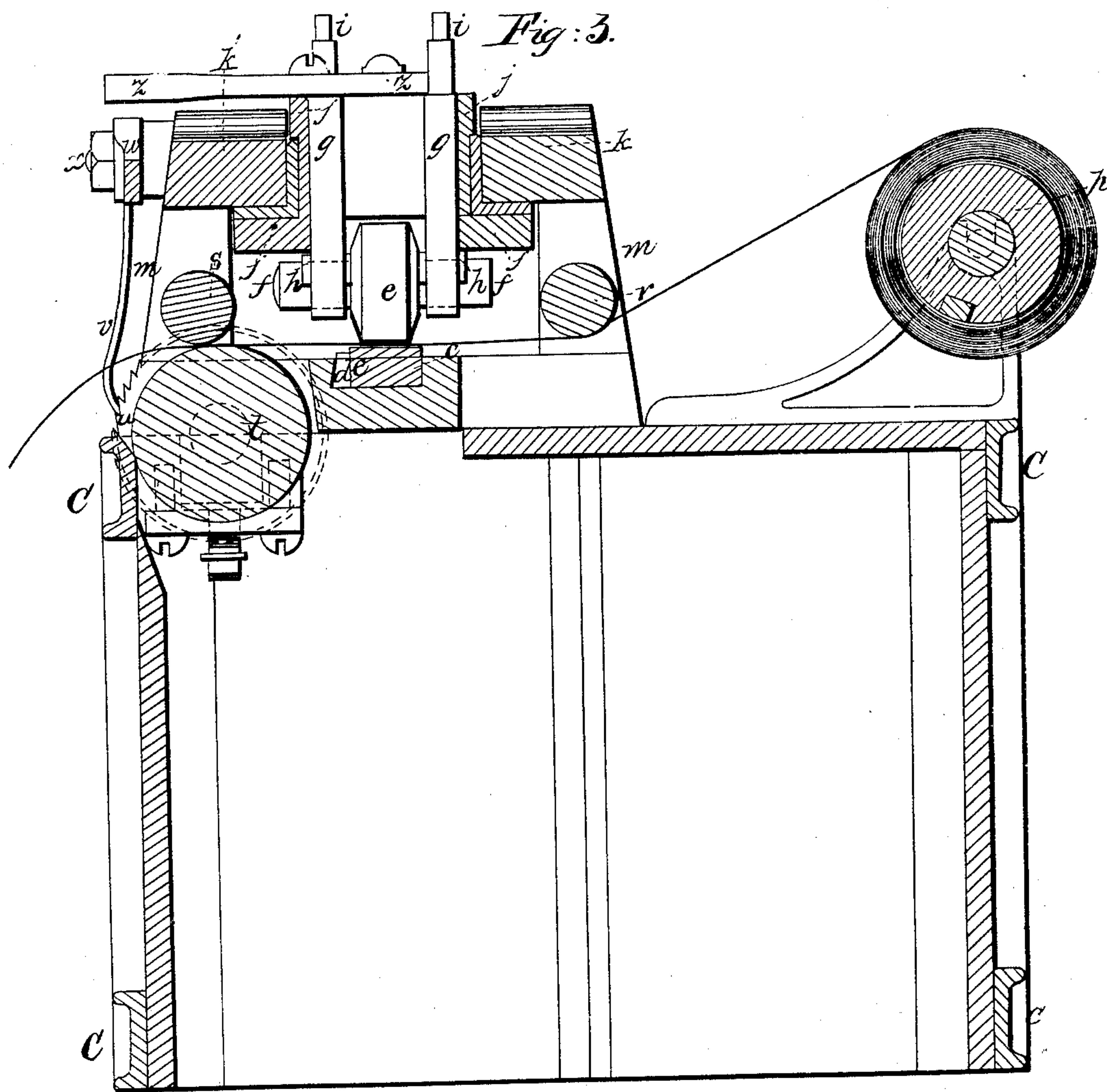
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UNITED STATES PATENT OFFICE.

E. L. PERKINS, OF ROXBURY, MASSACHUSETTS.

MACHINE FOR POLISHING PAPER.

Specification of Letters Patent No. 11,837, dated October 24, 1854.

To all whom it may concern:

Be it known that I, EDWARD L. PERKINS, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Polishing the Surface of Paper and Paper Fabrics, whether enameled or otherwise, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements by which my invention may be distinguished from all others, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plate of drawings represent my improved machinery. Figure 1 is a side elevation of my machine. Fig. 2 is a plan and Fig. 3 is a transverse vertical section taken in the plane of the line, A B, Figs. 1 and 2.

C C C C, &c., represents the frame-work of the machine, which should be made of cast iron or other sufficiently strong material, and firmly bolted together as shown in the drawings.

D D is the driving shaft having proper bearings on the top of the framework at the rear end of the machine.

On the top of the framework C C C C and near one corner of the machine is placed and properly secured a platform *a a a a* of cast iron. In a groove *b b* which runs across this platform at about the center of the same as shown in Fig. 2, is inserted the steel bed-plate *c c*, which should be of the same width as the polishing roll, and on which the paper rests when the said roll passes over it. The upper surface of this bed-plate should be highly polished and may be confined in its place by the metallic wedges *d, d*, or in any suitable way.

For the common and cheaper kind of work, a bed-plate of wrought iron may be used, it being provided with an upper surface of steel properly welded thereon and polished. For some other kinds of work an elastic bed-plate or roll or both will be necessary. Such a plate may be made of layers or strips of paper compressed together between two metallic plates and so placed in the groove *b b*, as to bring the edges of the strips of paper facing upward, and on these

edges a plate of steel with its upper side polished is to be fastened, and on this upper side the paper to be polished rests. The roll may be made by compressing a series of paper disks of the proper diameter, between two metallic heads.

e, Figs. 2 and 3, is a hard and rigid polishing roll made nearly of the same width as the bed plate, *c c*, and having its surface highly polished. The journals, *f, f* of this roll turn in proper bearings or boxes *h, h*, formed in the underside of the cross head *g g*, Figs. 2 and 3, said boxes being made in the sliding form and so as to be adjusted, (to cause the roll to bear with different degrees of pressure) by means of the adjusting screws *i i* Figs. 2 and 3. This cross-head is arranged with the right-angular bearing plates *j j j j* which move on the under and inner sides of the horizontal guiding beams *k k k' k'* which beams are screwed, (by the screws and nuts shown at *l l l l*, Fig. 2, so as to be adjustable), to the tops of the four upright posts *m, m, m, m*, the bases of which posts are fastened to the top of the platform *a a a a* before referred to. A reciprocating rectilinear motion is imparted to the cross-head *g g* and its appendages by means of the connecting rod *n n*, attached to said head at one end and at its other end to the crank *o o* on the driving shaft D D, the axis of which shaft should be in the same horizontal plane with the under sides of the guiding beams *k k k' k'*.

The paper properly prepared to be polished is wound upon the roller beam *p p* as shown in Figs. 2 and 3, and passes to the bite between the polishing roll *e* and bed plate *c c* under the guiding roll *r r*, being drawn through by the drawing rolls *s s, t t* arranged on the opposite side of the cross-head *g g*, to that on which the roller beam *p p* is situated.

The drawing rollers *s s* and *t t* are revolved intermittently by the following mechanical arrangement. A ratchet wheel *u u* is placed on the outer end of each journal of the lower of said rollers and a spring pawl *v, v* fits into and engages at one end of said pawls with the teeth of said ratchet wheels, and said pawls are connected at their upper ends to the extremities of the balance lever *w w* which lever has a proper fulcrum at the center of the exterior side of the guiding beam *k' k'* as shown at *x* Figs. 2 and 3.

1, and 2. A cam $y-y'$ is formed in proper position near each end of the balance lever with each of which alternately, the projecting stud or depressing dog $z z$ (attached to the top of the cross-head $g g$), comes in contact as said cross head traverses forward and back and leaves each edge of the paper.

As will be readily understood by inspection of the drawings, the depressing of the ends of the balance lever $w w$, and pawls attached to them, will turn the rolls so as to feed the paper intermittently along as fast as it is polished. The springing up of the ends of said balance lever is regulated by means of the screw stops $a'-a'$ working in the ends of the projecting cleats $b' b'$, which cleats are screwed at their inner ends to the top of the guiding beam $k' k'$.

The feeding rolls may be differently arranged if desired, for polishing sheets of paper, there being two feeding rollers as well as two drawing rollers, all to be geared together, in order to pass the paper along to the polishing roll, but where a long web of

paper is to be polished the above described arrangement is sufficient.

Having thus described my improved method of polishing paper, what I claim therein as new and desire to secure by Letters Patent, is:—

The combination of a pressing roll, a bed plate (over which the roll runs back and forth) to support the paper beneath the roll, and feeding rolls or the equivalent thereof, arranged to feed the paper across the bed plate with an intermittent motion, which alternates with the passage of the pressing roll, along the bed plate substantially as described, and this combination I claim whether the several parts be constructed and arranged as herein described or otherwise, as I believe myself to be the first to have combined a polishing roll, a supporting bed, and feeding mechanism.

EDWARD L. PERKINS.

Witnesses:

EZRA LINCOLN,
ROBERT L. HARRIS.