No. 824,482. PATENTED JUNE 26, 1906.

H. F. HOLTMANN.

SANDPAPERING MACHINE.

APPLICATION FILED AUG. 12, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

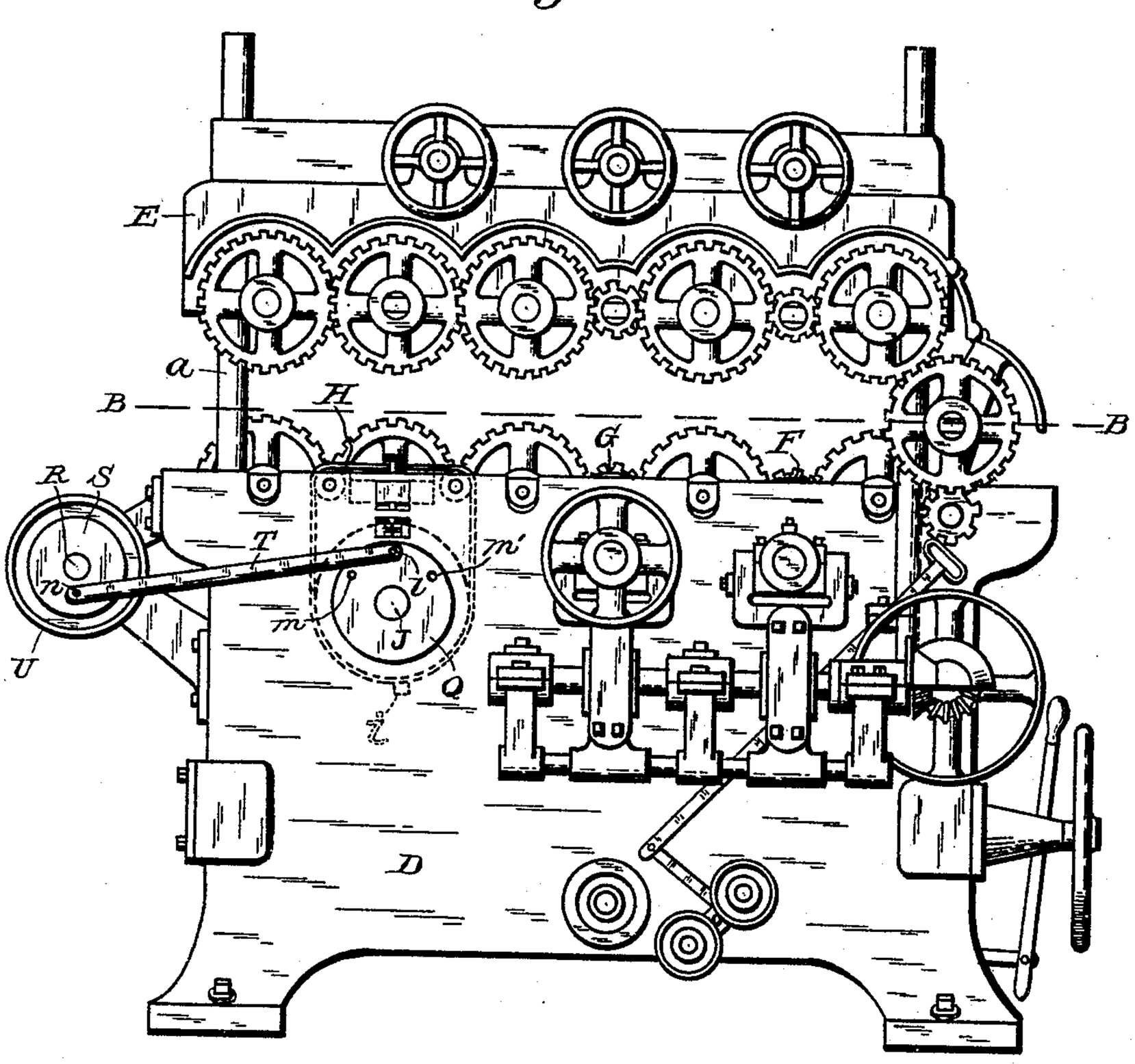


Fig. 2.

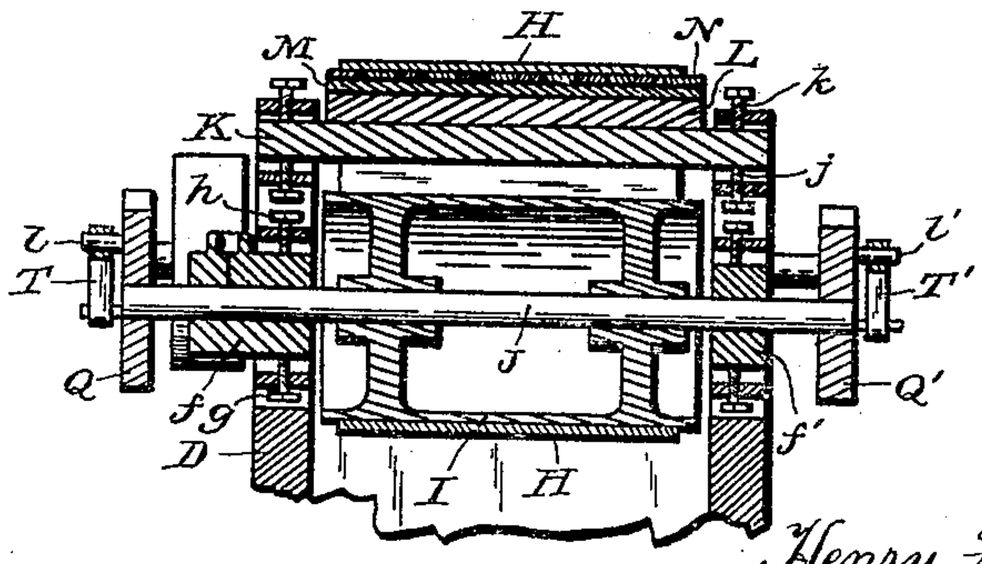
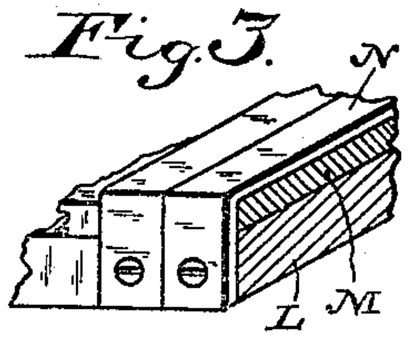


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

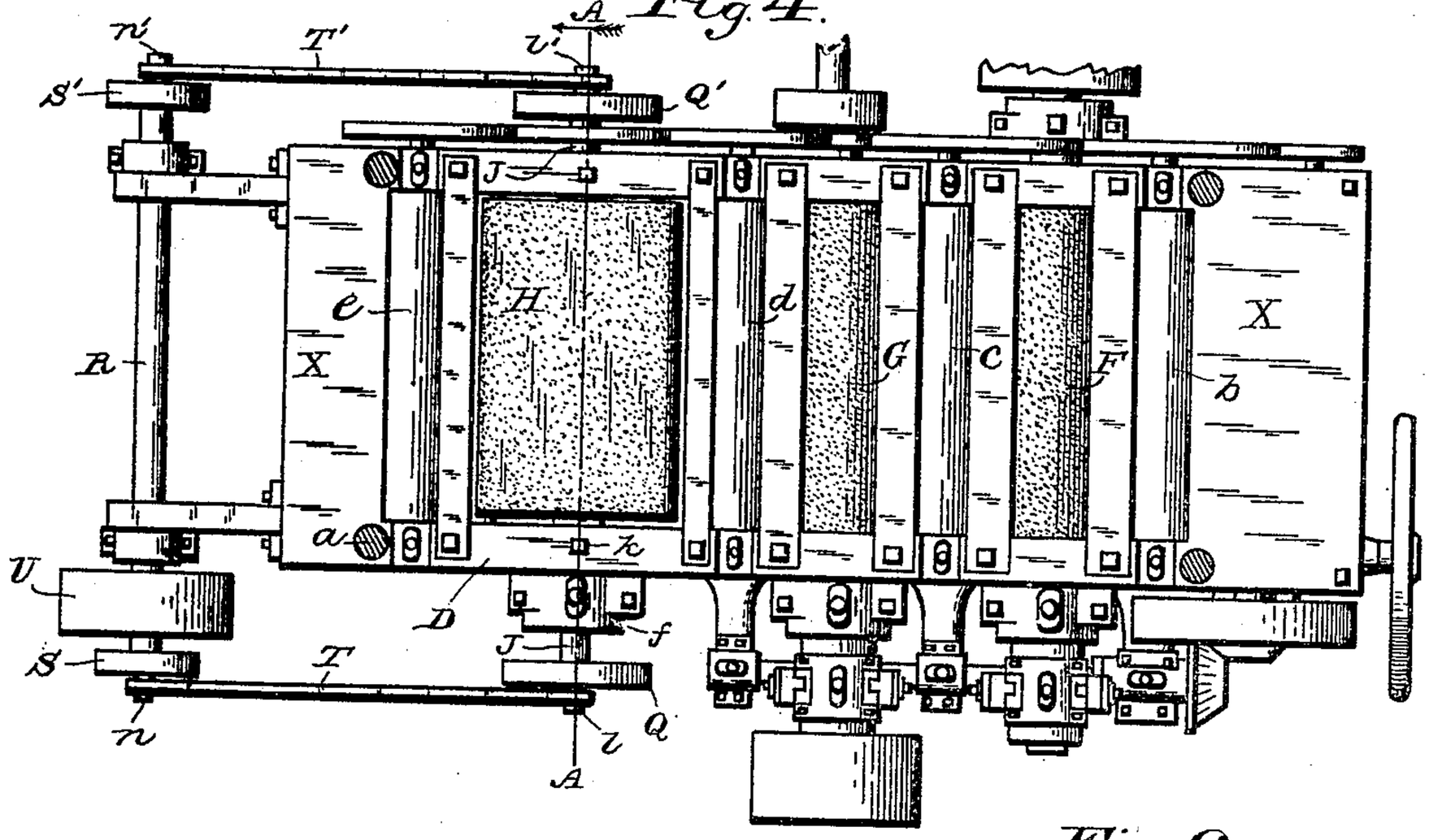


Fig. 5.

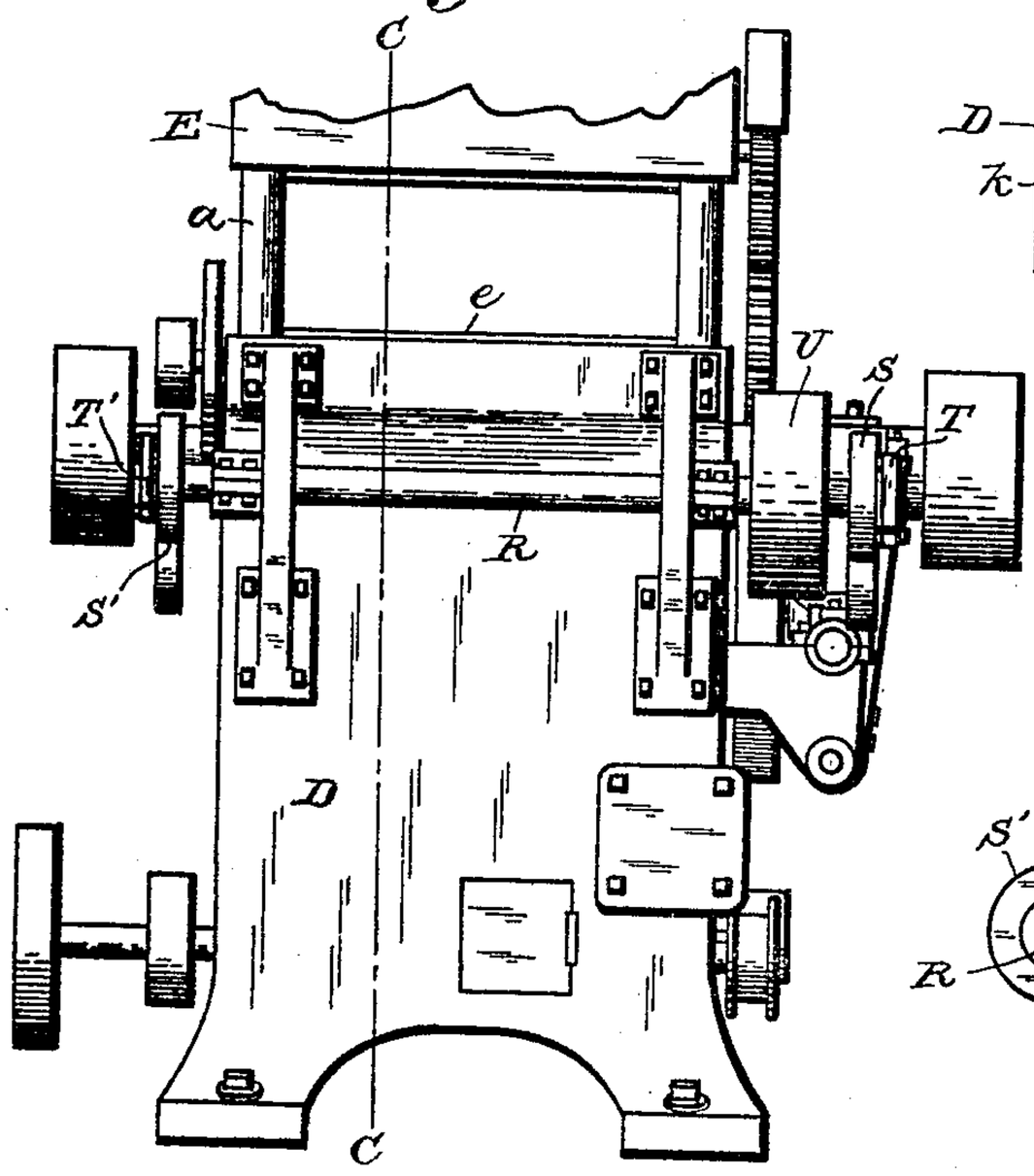


Fig. 6.

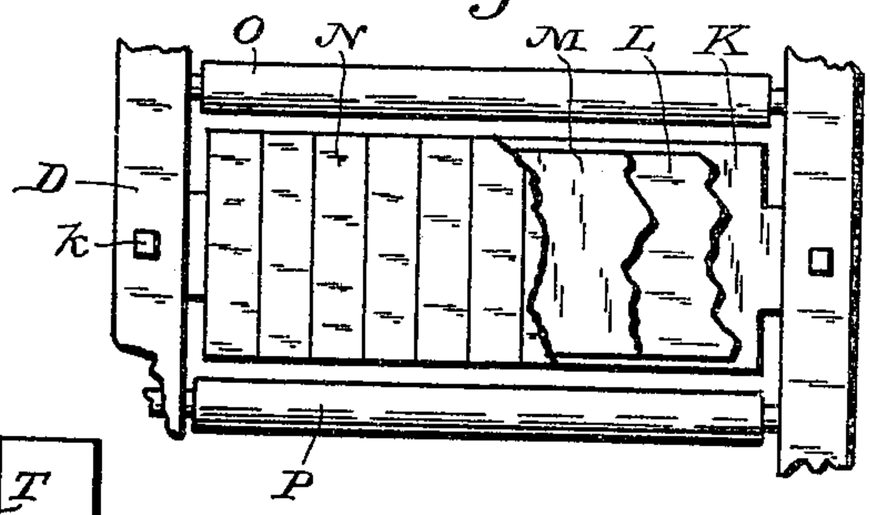
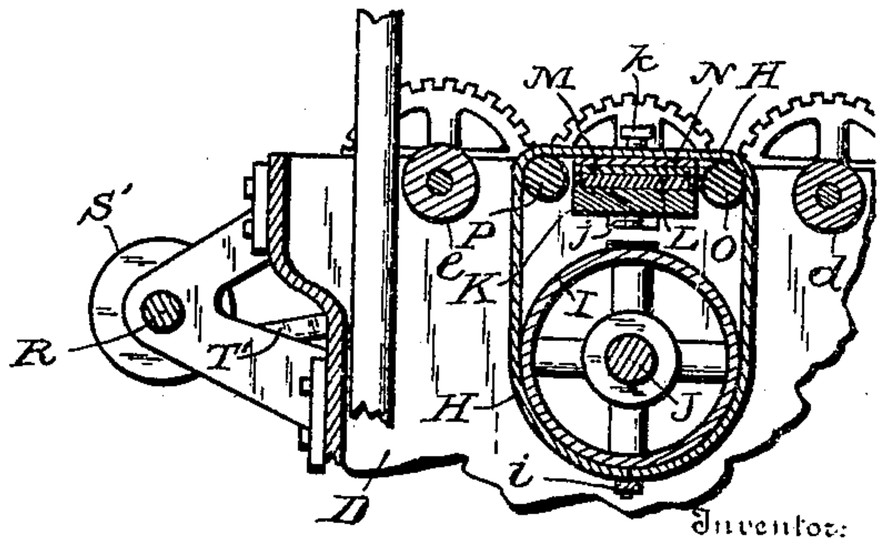


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY F. HOLTMANN, OF INDIANAPOLIS, INDIANA.

SANDPAPERING-MACHINE.

No. 824,482. Specification of Letters Patent. Patented June 26, 1906.

Application filed August 12, 1905. Serial No. 273,868.

To all whom it may concern:

Be it known that I, HENRY F. HOLTMANN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Sandpapering-Machines; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to machines for sandpapering furniture and similar articles; and the invention has particular reference to machines having sand-belts that move alternately in opposite directions, or forward and backward, in operation.

Objects of the invention are to provide a sandpapering-machine that may perform the operations of sandpapering perfectly on broad surfaces that may not be absolutely true planes, a machine that will sandpaper without causing scratches on the surfaces of the articles, and which will remove scratches that may have been produced by the rough-finishing machines.

A further object is to provide improved sandpapering apparatus that may be combined in other sandpapering-machines that may not be adapted to finish work in a perfect manner.

A still further object is to provide a sandpapering-machine that may be constructed at the minimum cost and be highly efficient without requiring disproportionately large frame structure and which will be durable and economical in use.

The invention consists in a sandpapering-machine comprising, essentially, a sand-belt, a yielding table supporting the sand-belt, a drum for moving the sand-belt, guide-rolls for the sand-belt, and means for operating the drum; and the invention consists, further, in the novel parts and the combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a side elevation of a well-known type of sandpapering machine with which the improvements are combined; Fig. 2, a fragmentary transverse sectional view of the improved machine as on the line A A in Fig. 4; Fig. 3, a fragmentary perspective view of the yielding table for the sand-belt; Fig. 4, a horizontal sectional view on the line B B in Fig. 1, showing a top plan of the sandpapering apparatus; Fig. 5, an end elevation of the machine in which the upper parts are broken away; Fig. 6, a top plan of the yielding table, of which parts are broken away; and Fig. 7 a fragmentary longitudinal sectional view on the line C C in Fig. 5.

Similar reference characters in the different figures of the drawings designate corresponding elements or features.

In practically carrying out the invention the machine may comprise one or more sand-belts or it may comprise also sand-drums over which the work may pass to the sand-belt, the latter arrangement being preferable, as illustrated in the drawings. The parts of the machine shown that comprise the sand-drums, feed-rolls, and operating-gearing being well known need only brief mention in describing the connections therewith of the present invention, which, however, may be constructed separately when preferred for special uses.

The machine comprises a main frame D, on which the work is to be handled, and a frame E, supporting the upper feed-works and movable vertically on guide-posts *a*, as will be understood. In the main frame are mounted the lower feed-rolls *b*, *c*, *d*, and *e* and also the sand-drums F and G and the sand-belt H in openings in the feed-table X. The gearing for operating the feed-rolls and the sand-drums may be of any suitable construction—such, for instance, as the drawings include—which will be understood, being well known. The feed-rolls *e* at the rear end of the machine is separated suitably from the feed-roll *d*, these feed-rolls being somewhat farther apart than the feed-rolls *c* and *d* or the feed-rolls *b* and *c*, so as to admit a sandpapering-table of considerable area between the feed-rolls *d* and *e*, where the sand-belt H operates. For operating the sand-belt H a drum I is secured to a shaft J, that is mounted rotatively in journal-boxes *f* and *f'*, which are arranged in suitable guides in the frame D, the boxes being adjustable as to height by screws *g* and *h*. The sand-belt H is in the form of a sand-covered sheet having two ends only secured to the drum I by means of a suitable retaining-strip *i*, and the belt is moved by means of this connection, together with the frictional contact of the sand-belt with the drum.

The yielding table for supporting the sand

belt so that it may present a substantially plane surface to the work comprises a foundation K, that is mounted in suitable guideways in the frame D above the drum I and provided with adjusting-screws *j* and *k*, and a filler L, attached to the top of the foundation or formed integral therewith, if desired, upon which is a yielding pad M, composed of rubber, felt, or the like, and narrow thin metallic plates N, arranged side by side on the pad and having their ends bent over against sides of the filler L and secured detachably thereto. Guide-rolls O and P are journaled in the frame D at opposite sides of the yielding table, the sand-belt H extending about the rolls and across and upon the metallic plates that form the top of the yielding table, which is approximately in the plane of the top of the feed-table X.

In order to impart a stroke motion or a forward-and-back motion to the part of the sand-belt that may be on the yielding table, suitable mechanism is provided, which preferably comprises disks Q and Q′, that are secured to the ends of the shaft J and provided with wrist-pins *l* and *l′*. A shaft R is mounted rotatively on the end of the frame D and is provided at its ends with disks S and S′ having crank-pins *n* and *n′*, there being connecting-rods T and T′ connected to the wrist-pins and the crank-pins. The wrist-pins may be removed from the disks Q and Q′ and inserted in holes *m* or *m′*, that are provided in the disks in order to adjust the sand-belt H to different operative positions after having become worn, so as to utilize the greater portion of the surface of the sand-belt. The shaft R is provided with a pulley U for its operation either by being belted to other parts of the machine or to any suitable driving means. It should be understood that crank-arms may be employed in lieu of the disks Q and Q′ and S and S′, if preferred.

In practical use the articles that are to be finished should be fed through the machine in the customary manner, being first sandpapered by the rotative sand-drums F and G and then by the sand-belt H. In the operation of the machine the shaft R will be rotated, and by means of the connecting-rods T and T′ the drum I will be moved rotatively about one-third of its revolution and alternately back and forth, thus giving the sand-belt on the yielding table a reciprocatory stroke movement forward and backward longitudinally of the machine, the movements being rapid and producing the excellent quality of work that may be done more slowly and laboriously by hand operations. The elastic plates N and the pad beneath will insure uniform contact against the surface of the article, which usually is not perfectly true.

When the plates become worn out, they may be readily replaced by new plates, and when the sand-belt becomes too much worn for effective service it may be quickly shifted by changing the wrist-pins *l* and *l′* to either the holes *m* or the holes *m′*, thus moving a new part of the sand-belt to the operative position on its supporting-table. The upper feed-works will of course operate in the usual manner.

Other operations and movements will be obvious from the foregoing description.

Having thus described the invention, what is claimed as new is—

1. A sandpapering-machine including a table having a yielding surface, guide-rolls at opposite sides of the table, a sand-belt extending across the surface of the table and the guide-rolls, and means for imparting reciprocatory movements to the sand-belt on the table.

2. A sandpapering-machine including a yielding table, guide-rolls at opposite sides of the table, a sand-belt extending across the table and the guide-rolls, a rotative drum to which the sand-belt is connected, and means for moving the drum rotatively forward and backward alternately.

3. A sandpapering-machine including a table, guide-rolls at opposite sides of the table, a sand-belt extending across the table and the guide-rolls, means for imparting reciprocatory movements to the sand-belt on the table, and means for shifting portions of the sand-belt from the table and advancing other portions of the sand-belt onto the table.

4. A sandpapering-machine including a table comprising an adjustable foundation having thereon a yielding substance on which are a plurality of elastic metallic plates removably supported, guide-rolls at opposite sides of the table, a sand-belt extending across the table on the plates and across the guide-rolls, and means for imparting reciprocatory movements to the sand-belt on the table.

5. A sandpapering-machine including a table, guide-rolls at opposite sides of the table, a drum mounted rotatively below the table and provided with a wrist-pin connected operatively therewith, a sand-belt attached to the drum and extending about the guide-rolls and across the table, a rotative shaft provided with a crank-pin, a connecting-rod connected to the crank-pin and also to the wrist-pin, and means for driving the rotative shaft.

6. A sandpapering-machine including a table, guide-rolls at opposite sides of the table, a drum provided with a supporting-shaft and mounted below the table, a sand-belt connected to the drum and extending over the guide-rolls and across the table, a pair of disks secured to the supporting-shaft and having each a plurality of wrist-pin holes therein, wrist-pins insertible into either of the wrist-pin holes, a rotative shaft provided with a pair of crank-pins, and connecting-rods connected with the crank-pins and also with the wrist-pins.

7. A sandpapering-machine including a frame, a feed-table, feed-rolls, a sand-roll, a table supported in an opening in the feed-table between a pair of feed-rolls, guide-rolls mounted at opposite sides of the table, a drum mounted in the frame below the table, a sand-belt connected to the drum and extending about the guide-rolls and across the table, and means for imparting forward and backward movements alternately to the drum.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY F. HOLTMANN.

Witnesses:
WM. H. PAYNE,
E. T. SILVIUS.