

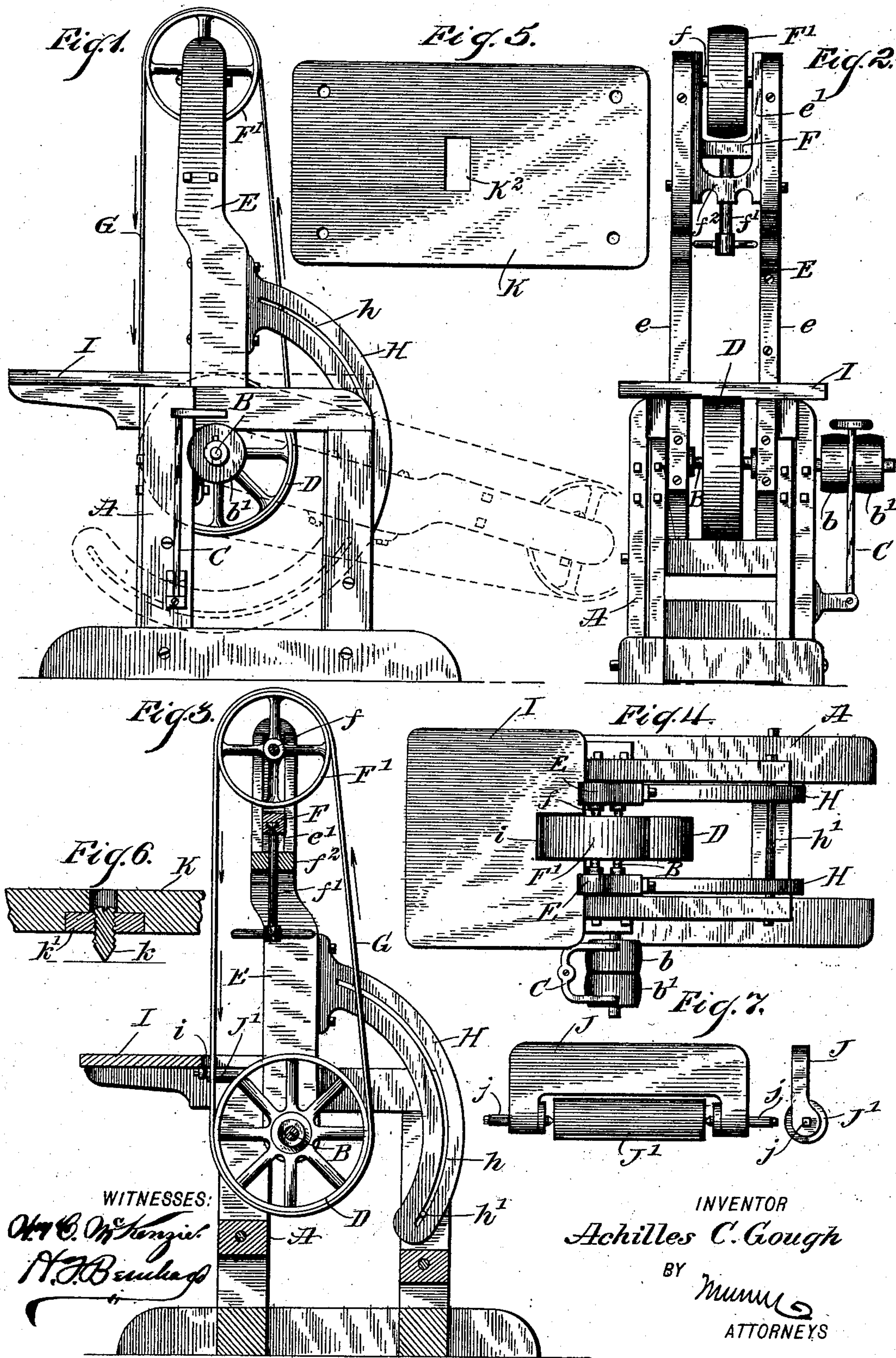
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A. C. GOUGH.  
UNIVERSAL SANDING MACHINE.

APPLICATION FILED SEPT. 5, 1903.

NO MODEL.



WITNESSES:  
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## UNITED STATES PATENT OFFICE.

ACHILLES C. GOUGH, OF BENTON, KENTUCKY.

## UNIVERSAL SANDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 747,699, dated December 22, 1903.

Application filed September 5, 1903. Serial No. 172,080. (No model.)

*To all whom it may concern:*

Be it known that I, ACHILLES C. GOUGH, a citizen of the United States, and a resident of Benton, in the county of Marshall and State of Kentucky, have invented a new and Improved Universal Sanding-Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in universal sanding-machines for grinding and finishing woodwork; and the object that I have in view is the provision of an improved machine which combines the desirable features of prior irregular, drum, and horizontal machines by reason of an adjustment, which may be easily and quickly performed, to bring the grinding element into any one of a number of different positions, according to the requirements of the work.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the actual scope of the invention will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved universal sanding-machine, illustrating the adjustable frame and the sanding and the grinding elements in a raised position by full lines, said frame and the grinding element being shown by dotted lines in a lowered position.

Fig. 2 is an elevation of the machine looking at the right-hand side of Fig. 1, the grinding element being omitted. Fig. 3 is a vertical sectional elevation of the machine in the position shown in Fig. 1. Fig. 4 is a plan view of the machine. Fig. 5 is a plan view of a supplemental table adapted to be used in connection with the machine when the frame and the grinding element are lowered to the horizontal positions indicated by dotted lines in Fig. 1. Fig. 6 is a detail fragmentary sectional view showing one form of means for vertically adjusting the supplemental table, and Fig. 7 shows in plan and edge views a guide-roller for retaining the endless grinding element on its supporting-pintles.

A designates the main frame of the improved machine, the same being provided

with suitable shaft-bearings for the accommodation of a horizontal driving-shaft B, one end of said shaft being extended beyond a side of the machine for the reception of fast and loose pulleys *b* and *b'*. The pulleys are adapted to be individually driven by a suitable belt, (not shown,) and this belt will be shifted from one pulley to the other by the operation of a belt-shifter C. The shaft B is provided within the machine with a band-pulley D, and on this shaft B is loosely held one or more side bars *e*, which form an adjustable or swinging frame E, the latter being mounted for movement on the shaft B in a vertical plane. This adjustable frame E is provided at its upper portion with suitable guides *e'*, which receive a slidable cross-head F, and this cross-head is provided with bearings for the accommodation of a shaft *f*, which carries an idler-pulley F', the latter being disposed in the same vertical plane as the pulley D. (See Fig. 2.) The cross-head F is adapted to be raised or lowered by the rotation of an adjusting-screw *f'*, which is mounted in a suitable cross-piece *f''*, attached to the adjustable frame E below the cross-head F, said screw *f'* having swiveled engagement with the said cross-head F for the purpose of imparting the desired adjustment to the said cross-head and to the idler-pulley, which is carried thereby.

The pulleys D F' support the grinding element, which is shown by the drawings in the form of an endless band or apron G. This apron is fitted around the pulleys, and it is provided with an abrasive surface, which may be formed by depositing sand, emery, or other similar abrasive material on the outer active surface of the apron. The apron is supported by the pulleys, so as to be shiftable with the adjustable frame E without increasing the tension of said apron, because the frame turns on an axis which is common to the driving-pulley D and to said frame; but by adjusting the screw *f'* any slack may be taken up in the grinding-apron.

The swinging frame E may be lowered to substantially a horizontal position, as indicated by dotted lines in Fig. 1, or it may be adjusted to any position intermediate the dotted and full line positions shown by said figure. I have provided the frame with means for holding it in any of its adjusted positions,



and in the drawings this holding means is shown in the form of a segment H, one end of which is secured firmly to a side bar *e* of said adjustable frame. Said segment is provided with a longitudinal arcuate slot *h*, through which passes a bolt *h'*, the latter being fastened to a part of the frame A and adapted to retain the segment H and the frame E in their adjusted positions.

The frame A is provided with a table I, having a slot or recess *i*, as shown by Figs. 3 and 4, through which slot or recess is adapted to travel one lead or run of the endless abrading-apron G. On the under side of the table A are secured brackets J, (shown in Fig. 7,) said brackets being located on opposite sides of the recess or slot *i* of the table. These brackets are provided with bearing-pins *j*, which support guide-rollers J', said guide-rollers being disposed to have engagement with the respective edges of the endless apron G and operating to retain the apron against edgewise displacement on the pulleys D F'.

The frame A and the apron G may be adjusted to the upright positions shown by Fig. 1 when it is desired to grind regular work; but when the frame and the apron are lowered to their substantially horizontal positions I prefer to employ a supplemental table K for the purpose of protecting the apron and the pulleys. This supplemental table is adapted to be placed on the frame A and to be adjusted thereon by means of screws *k*, the latter being passed through nuts *k'*, which are fastened to the supplemental table and are adapted to engage with the main frame A in a way to provide a limited vertical adjustment for said table K. This table is provided with a central slot K<sup>2</sup>, as shown by Fig. 5, and it is adapted to be placed on the frame A to assume the position indicated by dotted lines in Fig. 1.

In converting the machine into a table-drum sander the adjustable frame and the apron are lowered to their substantially horizontal positions and the supplemental table K is applied to the main frame, whereby the machine is adapted for use in finishing wood-

work. When the belt is lowered, it can be used the same as any horizontal sanding-machine, and the belt running over the pulley D may be used as a drum-sander for inside work.

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

1. A machine of the class described having a recessed table, a drive-shaft, an adjustable frame mounted loosely on said shaft, driving and idler pulleys on the shaft and the frame respectively, an endless abrading-belt, and guide-pulleys mounted on said table near the respective sides of the recess therein and presented for engagement with the edges of said belt.

2. A machine of the class described having a main frame, a drive-shaft, an adjustable frame loosely mounted at one end on said shaft and provided at its free end with a longitudinal guideway and with a cross-bar, a pulley-frame slidably confined in said guideway and shiftable with said adjustable frame, an adjusting-screw supported by the cross-bar and connected to the pulley-frame for moving it lengthwise of the adjustable frame, pulleys on the drive-shaft and in the pulley-frame respectively, and an endless abrading-belt.

3. A machine of the class described, comprising a main frame, a drive-shaft mounted therein and provided with a driving-pulley, an idle pulley on the adjustable frame, an endless abrading member supported by said driving and idle pulleys, and a supplemental table having means for attachment to the said main frame in position over the driving-pulley when the adjustable frame and the abrading member are lowered to substantially horizontal positions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ACHILLES C. GOUGH.

Witnesses:

JOHN W. KINNEY,  
THOMAS J. COOPER.