Sheet 1 - 2 Sheets.

J. Downie.

Covering Card.

No. 48,796. Patented Jul. 18, 1865.

Fig. 1

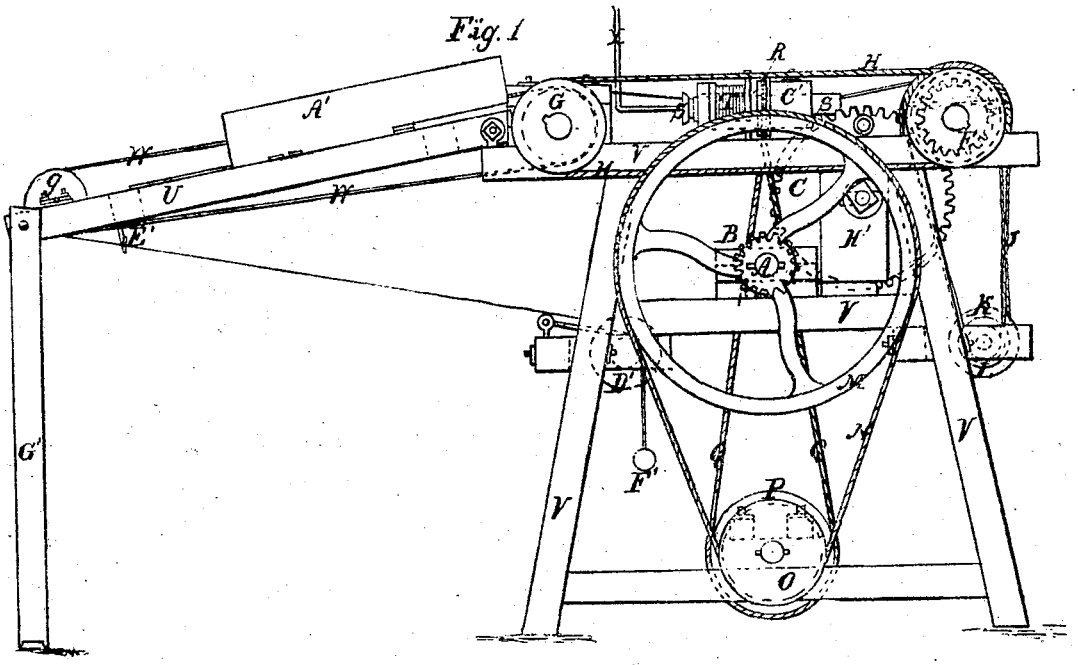
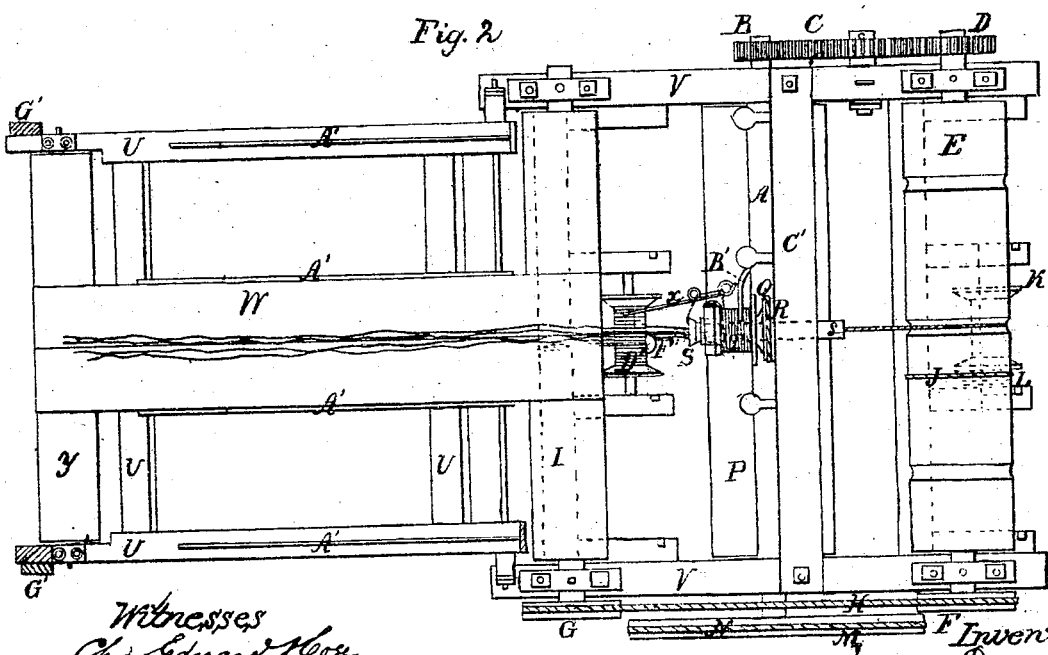


Fig. 2



Witnesses
Chas. Edward Hoge
James T. Graham

Inventor
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By Thos. P. Hoge

Sheet 2.-2 Sheets.

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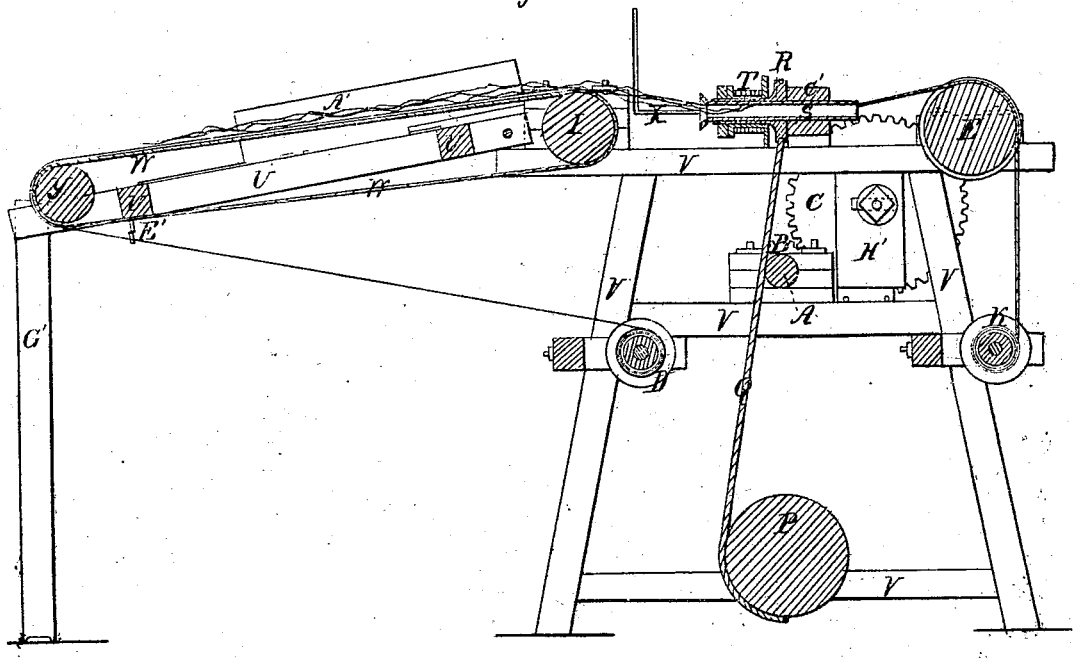
Fig. 3



Witnesses

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James T. Graham

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James Downie

By Thos Clow

Atty

UNITED STATES PATENT OFFICE.

JAMES DOWNIE, OF PATERSON, NEW JERSEY.

MACHINE FOR PREPARING WOOF FOR THE MANUFACTURE OF HAIR AND GRASS CLOTH.

Specification forming part of Letters Patent No. **48,796**, dated July 18, 1865.

To all whom it may concern:

Be it known that I, JAMES DOWNIE, of Paterson, in the county of Passaic and State of New Jersey, have invented a Machine for Preparing Woof for the Manufacture of Hair and Grass Cloths, of which the following is a specification.

In the weaving of hair and grass cloths, as heretofore practiced, it has been necessary to make the width of the cloth correspond to the length of the hair or grass, and consequently the manufacture of said cloths of an available width involved the waste of the larger part of the hair or grass, it being too short to answer the purpose. The cloth thus manufactured had no selvages and the hair or grass projected at both edges of the web, rendering it necessary, in using the cloth, that both edges should be turned in or hemmed, thus forming a large and ungainly seam. The object of my invention is to obviate these and similar objections to the manufacture and use of hair and grass cloths; and it consists of a machine for preparing woof for weaving said cloths.

In the drawings, Figure 1 is a side view of the machine. Fig. 2 is a top view of the same. Fig. 3 is a vertical longitudinal central section of the same.

A is the driving-shaft, to which motion is given by steam or any other power which may be convenient. Motion, by means of the spur-gears B, C, and D, is given to the shaft E, which shaft, by means of the pulleys F and G and the band H, gives motion to the shaft I. The shaft E, by means of the band J and pulley L, gives motion to the spool or bobbin K for winding up the prepared woof. The shaft A, by means of the fly-wheel M, band N, and pulley O, gives motion to the shaft P, which shaft P, by means of the band Q and pulley R, gives motion to the spindle S, which carries the spool T.

U is a frame hinged to the main frame-work V of the machine in order to support the feeding apparatus, and also to allow said frame to be dropped down out of the way when the machine is not in use.

W is an endless apron for carrying the hair or grass forward to be acted upon by the fliers, of which any desired number may be used, and one of which is shown at X. The endless apron W passes around the shafts I and Y, and motion is communicated to it by the revolution of the shaft I, the object of the shaft Y being simply to diminish friction.

A′ are plates or division-boards designed to separate on the shafts I and Y the different endless aprons, any number of which may be used, corresponding to the number of separate woof-threads to be made upon the machine and prevent the hair or grass supplied to each of them from becoming mingled with that supplied to the others, and also to insure the fibers passing up the apron in such a way as to be acted upon by the fliers X. The fliers X are attached to the nut which holds the spool T upon the spindle S, and are carried around by it in its revolution. They are made of wire and bent in such a way as to form loops, through which the wrapping-thread from the spool T is passed, which thread is carried around by the revolution of the fliers X and wrapped or wound around the hair or grass and the guiding-thread, as represented in the drawings. The free end of the fliers X is bent up at right angles or curved, so as to gather the straggling or scattered fibers as they pass or project from the endless apron and guide them toward the mouth-piece of the hollow spindle S, so that they may be drawn into said hollow spindle and covered by the wrapping-thread, as represented in the drawings. The revolution of the spool T upon the hollow spindle S is regulated by the pressure of the spring B′ attached to the cross-beam C′ upon the said spool T. The free end of the spring B′ is allowed to ride upon the thread of the spool, by which means the pressure of the spring is diminished as the thread is gradually unwound from the spool, so that the spool may revolve more rapidly as the diameter of the coils of thread is diminished and the delivery of the thread maintained at a uniform rate.

D′ is the spool which carries the guiding-thread, which passes from the spool D′ through the guide E′ attached to the frame U, thence around the roller or shaft Y, and along the upper surface of the endless apron W to the hollow spindle S. The guiding-thread is kept taut by the weight F′, suspended in such a way as to ride upon the spool D′. Said weight F′ may be increased or diminished, as may be necessary, to give the proper amount of friction. The completed woof passes from the rear or de-

livery end of the hollow spindle S, thence over the shaft E, and is wound upon the spool K, to which motion is given, as before described.

The supports G′ are hinged or pivoted to the frame U for convenience in dropping the frame U out of the way when not in use, and especially to enable the height of the front of the frame U to be regulated to correspond with the stature of the feeder.

Each machine is designed to be furnished with several sets of aprons, spools, fliers, &c., the only limit to their number being the space which the machine is to occupy and the capacity of the driving-power. (The drawings represent a machine calculated for three sets.)

The machine can be fed by boys or girls, and an active feeder can supply fibers to six or more sets or aprons, the only care necessary being to place the fibers on the endless apron between the division-plates in such a way that the smaller ends of the hair or grass shall slightly overlap the larger ends of the hair or grass previously placed upon the apron.

In manufacturing different qualities of woof different degrees of speed may be advantageous. This is obtained by removing the cog-wheels C and D and supplying their places by others of different diameters. Provision is made for this by constructing the machine so that the relative position of the axle of the wheel C with respect to the axles of the wheels B and D may be varied. This is accomplished by constructing the block H′, which supports the axle of the wheel C, with long tenons for entering mortises in the frame V, as represented in Figs. 1 and 3, so as to give said block a vertical adjustment. The axle of the wheel C is also secured in a horizontal slot, so that by loosening the nut which secures said axle the axle is capable of a lateral adjustment. By means of these two adjustments the relative positions of the three axles can be accomodated to sets of wheels of different diameters, as may be required.

I claim—

The combination of the hollow shaft or spindle S with the fliers X and the feeding-apron W, the whole operating substantially as described, and for the purpose stated.

JAMES DOWNIE.

Witnesses:
THOS. P. HOW,
JAMES T. GRAHAM.