

W. H. Smith.

Graining Mach.

N^o 90,056.

Patented May 11, 1869.

Fig. 1.

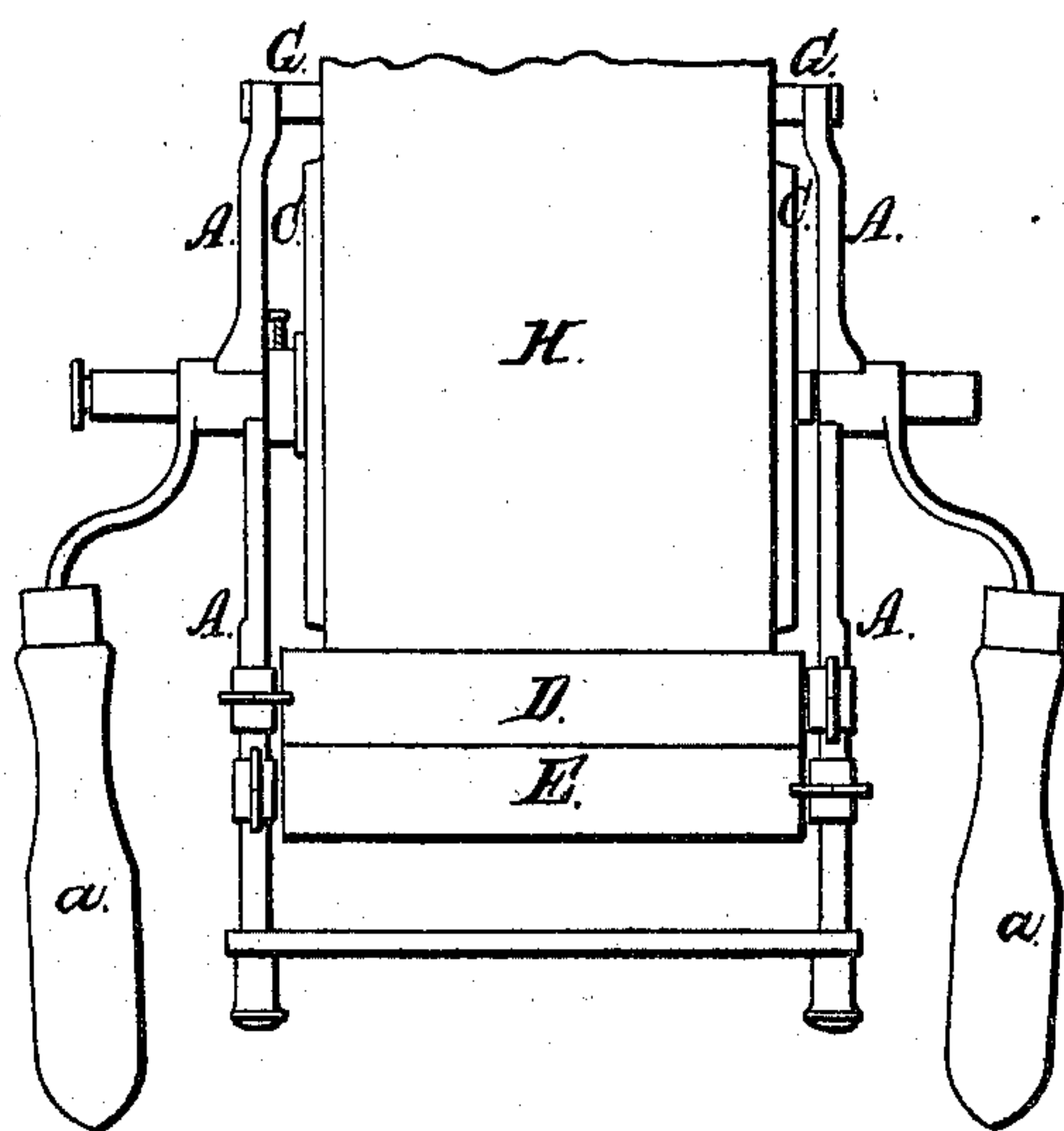


Fig. 2.

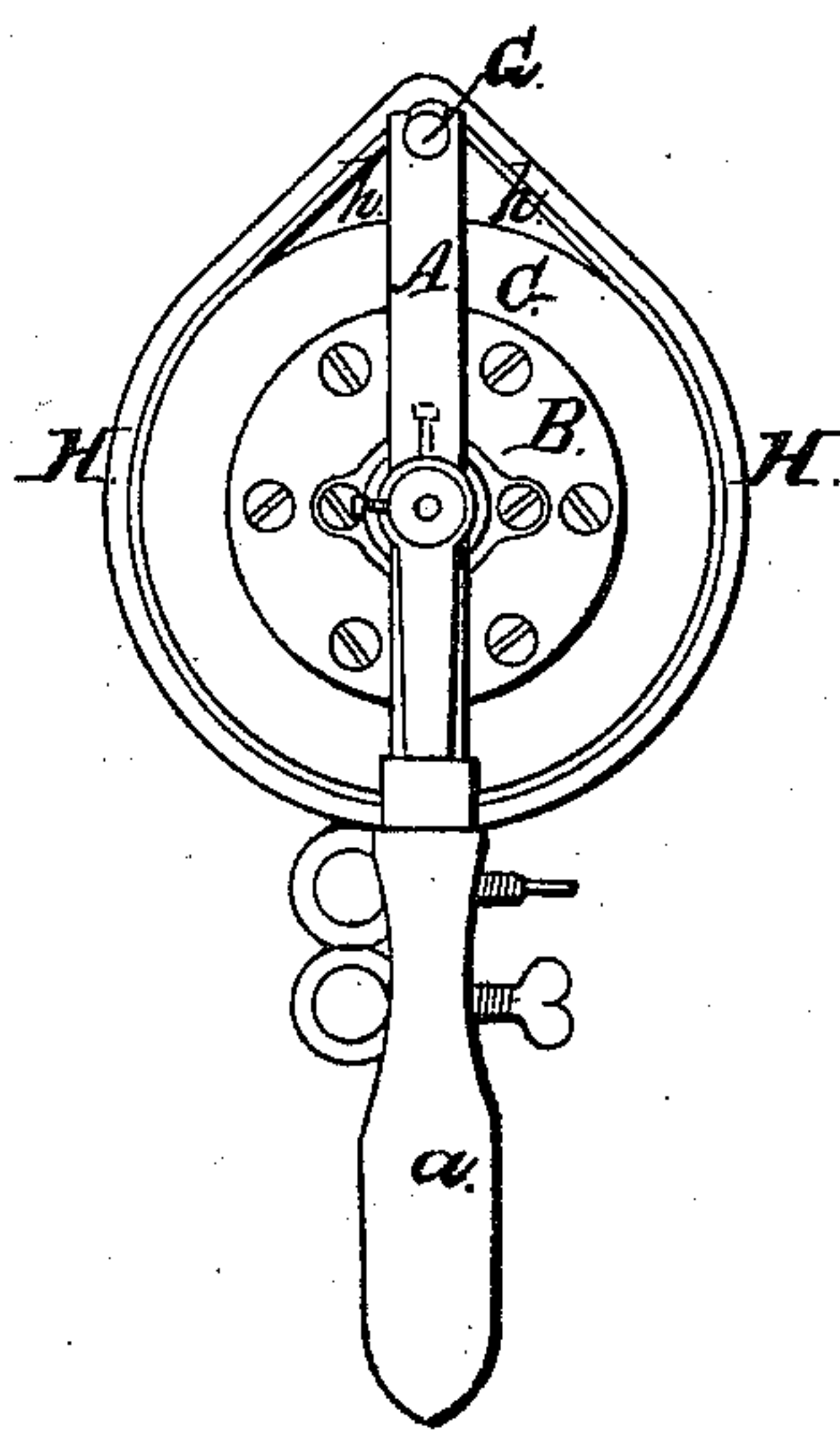
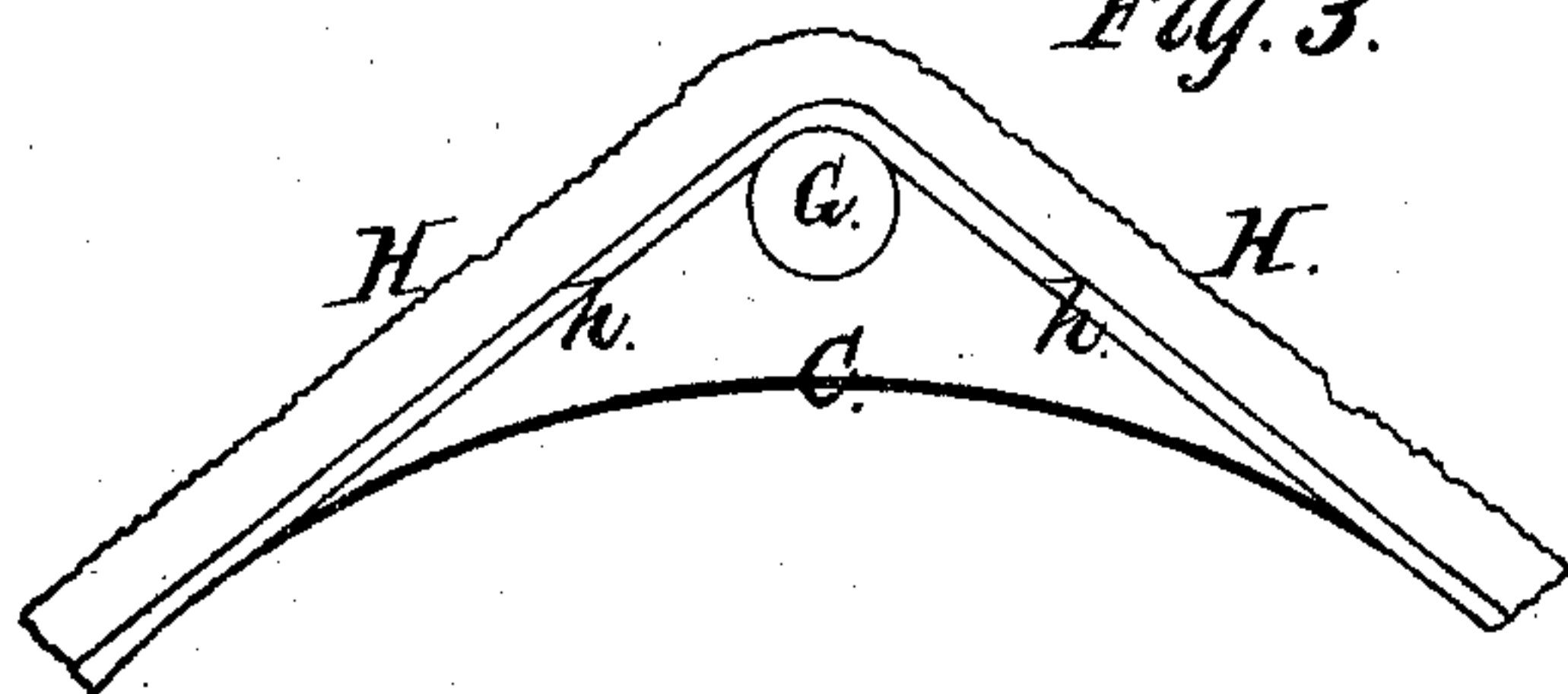


Fig. 3.



Witnesses.

C. C. Livings
M. C. Dey

Inventor.

W. H. Smith

by his attorney J. B. Stetson

United States Patent Office.

WILLIAM H. SMITH, OF NEW YORK, N. Y.

Letters Patent No. 90,056, dated May 11, 1869.

IMPROVEMENT IN GRAINING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM H. SMITH, of New York city, in the State of New York, have invented certain new and useful Improvements in Ornamenting-Machines; and I do hereby declare that the following is a full and exact description thereof.

My machine is intended more particularly for grain-ing in imitation of wood, applying coloring-matter by means of a soft surface, properly engraved, or indented, so as to imitate the coloring, and also the irregular figures of different varieties of wood; but it may be used to ornament, by means of other colors, and by the use of surfaces otherwise engraved or prepared, so as to produce scroll-work, lettering, or even pictures.

My invention adapts the machines to work under conditions, and to ornament in places which have not been possible with machines previously known. It will, for example, ornament sunk panels in doors, or in analogous situations, and produce the ornamental effect quite up to the end of each, it being necessary with the previous machines, when operating in sunk panels, to remove the machines, and discontinue the ornament at a considerable distance from the ends of the panels, leaving the ends of the panels blank, or unornamented.

I will first describe what I consider the best means of carrying out my invention, and will afterward designate the points which I believe to be new.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation, and

Figure 2, an end elevation of my machine for ornamenting.

Figure 3 is an edge view of a portion of the engraved elastic belt, or band, H, on an enlarged scale, showing the relation thereof to the main cylinder, and also to the small roller, which is employed under the belt, as represented.

Similar letters of reference indicate like parts in all the figures.

A is the fixed frame work, provided with handles, *a a*. This frame-work forms the bearings for all the parts.

A hollow shaft, B, is mounted in this frame-work, with liberty to turn.

The hollow shaft is closed at one end, and is provided at the other with a screw-plug, which allows the blowing up of the elastic cylinder C, which is mounted on the shaft B, as represented.

All these parts may be constructed in the manner described in the patent issued to Robert A. Adams, dated

D and E are inking-rollers, or coloring-rollers, which may be adjusted in the machine as represented, and which apply the coloring-matter uniformly, as will be readily understood.

A small roller, G, is mounted in bearings in the frame A, as represented. It is of small size, being, in practice, only from one-fourth to three-eighths of

an inch in diameter, with bearings turned smaller, so as to offer very little friction. This is mounted relatively to the large cylinder C, as represented.

H *h* is an elastic belt, running over both the large cylinder C and the small cylinder, or roller G.

Its outer surface is composed of a soft composition, which may be glue and molasses, boiled together, or any of the analogous compositions, which will give a highly elastic surface. It is engraved, or indented, as before suggested, to produce the ornamental design required.

Its inner surface is composed of knit woollen yarn, as indicated by *h*, the outer surface being designated by H.

This knit surface gives a strength to the belt which peculiarly fits it for the difficult conditions under which it is used.

The machine is applied to the work in the same manner as is described in the Adams patent, before referred to, and is rolled forward, on plain surfaces, in the same manner, the belt H *h* rolling around the cylinder C, and traversing over the small roller G, as will be understood.

The peculiar properties of the machine become available when it is desired to ornament close to the end of a sunk panel. To do this, the machine is held in such position, at each end of the panel, that that part of the belt which is resting on the roller G is pressed upon the surface to be ornamented.

The small diameter of the roller G allows it, and the belt covering it, to fit very closely into the ends of the sunk panels.

It will now be understood that, in commencing at one end to ornament a sunk panel, the machine is applied at the extreme end of the panel, pressing upon the work with that part of the belt which lies on the small roller G. In this position it is moved forward, and the belt H *h*, and its connections, turn gradually as the machine is moved. After having thus moved away from the end of the panel, the portion of the belt which rests upon the large cylinder C may be made available, and in this condition the belt will apply with more elastic action, because the elasticity of the air in the cylinder C becomes available, to aid in applying the ornamenting-surface to the inequalities in the panel.

On approaching the opposite end of the panel, the machine is again tilted up into the position so that the pressure is effected through the small roller G, instead of through the large roller C.

In order to produce the belt, the knit goods *h* having been previously made of a proper size, and cut or otherwise prepared in proper lengths, are held on a mould, which is collapsible, and being placed within another mould, so as to leave a proper thickness for the composition, the melted composition is poured in, and allowed to fill the space, and also to saturate the interstices in the knit material *h*.

After the composition has set and sufficiently hard-

ened, the interior of the mould is collapsed, and the compound belt thus produced is carefully removed.

When properly hardened, this belt may be applied to the machine, as before described, and may be used for a longer period.

The knit lining *h* performs a very important function, in giving strength and durability to the belt. Without this expedient, or some equivalent therefor, I believe it would be impracticable to run a sufficiently soft and elastic belt over the small roller *G* in the manner described.

Having now fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. I claim the compound belt *H h*, formed with a soft and ornamented outer surface, and with a tough and durable inner surface, and adapted to operate substantially as and for the purpose herein set forth.

2. I claim traversing the ornamenting-belt over a surface of small radius, *G*, in combination with a larger roller, *C*, and with an operating-frame, *A a*, or its equivalent, so as to ornament thereby, not only on plain surfaces, but in recesses, or reëntering angles in the work, substantially as and for the purposes herein set forth.

WILLIAM H. SMITH.

Witnesses:

C. C. LIVINGS,
W. C. DEY.