

S. E. HILDRETH.  
Metal-Planing Machine.

No. 224,534.

Patented Feb. 17, 1880.

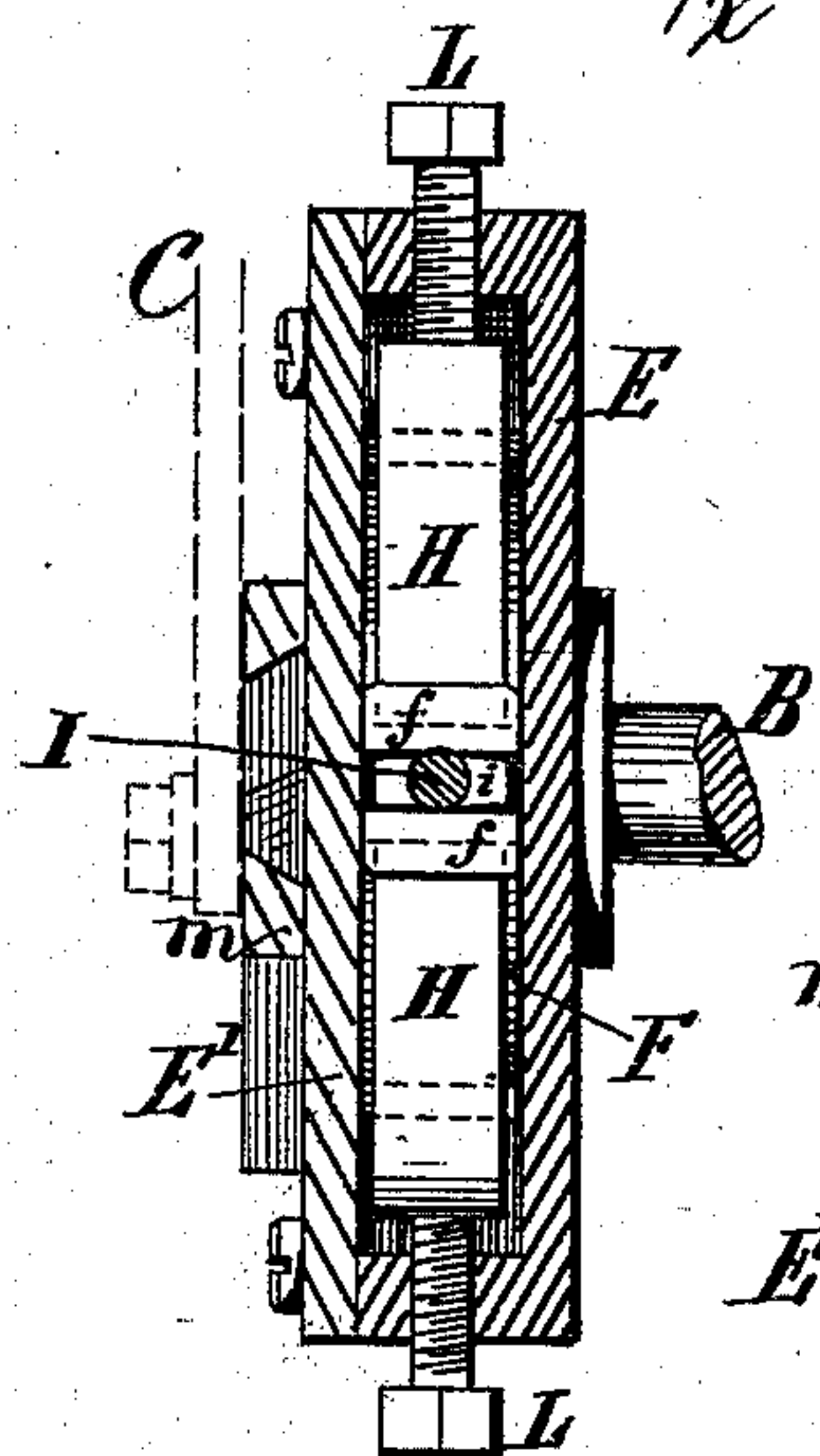
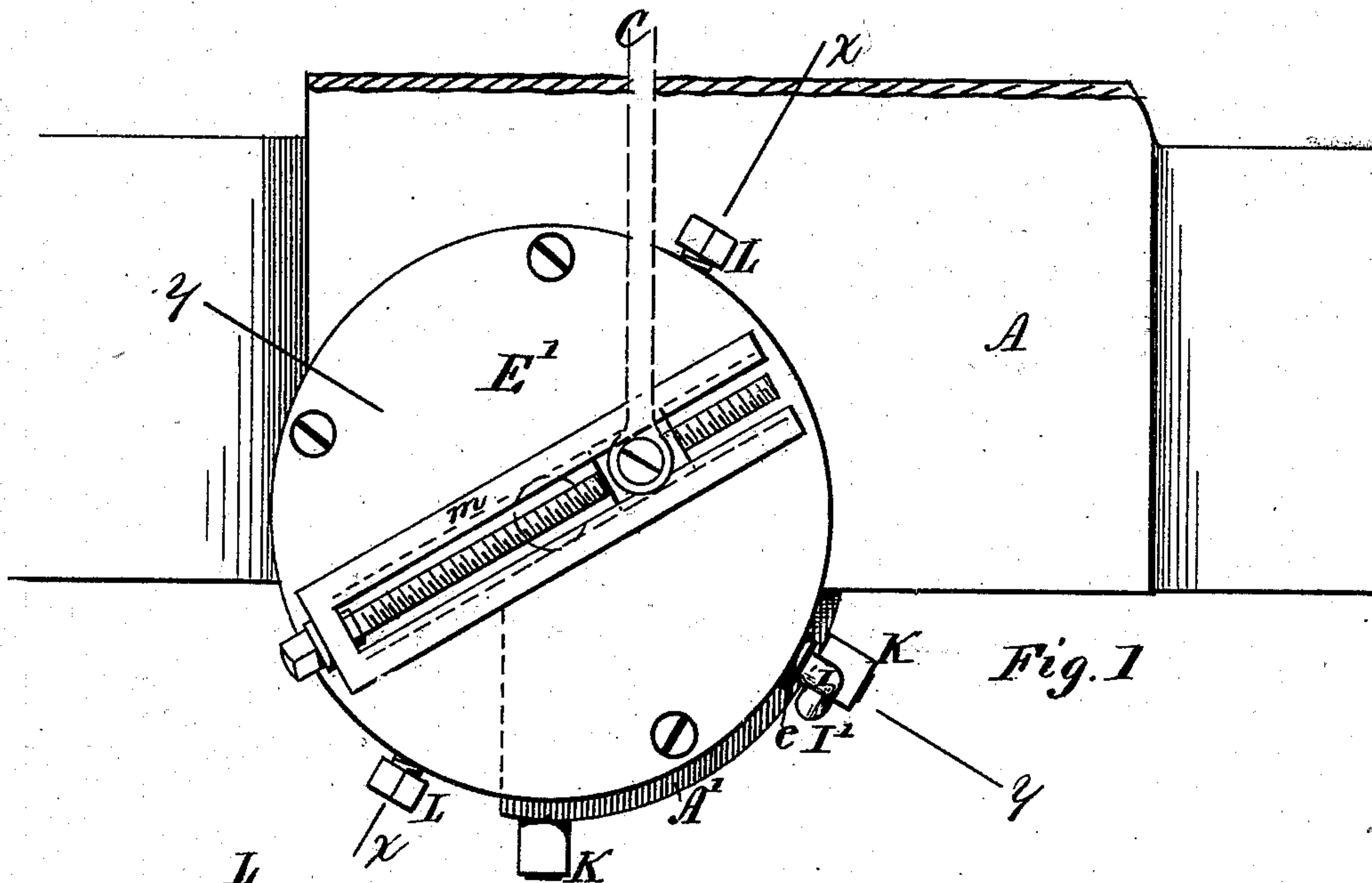


Fig. 3

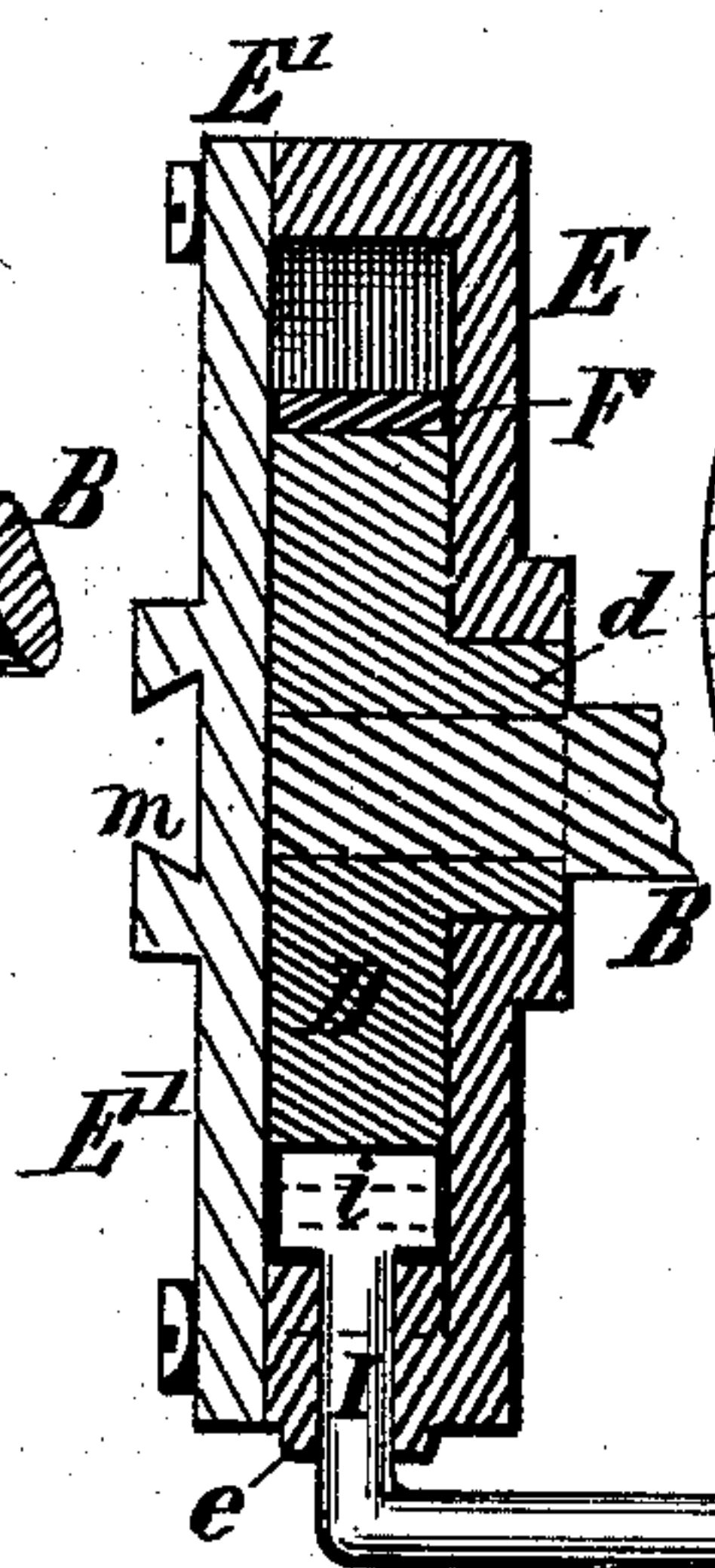


Fig. 4

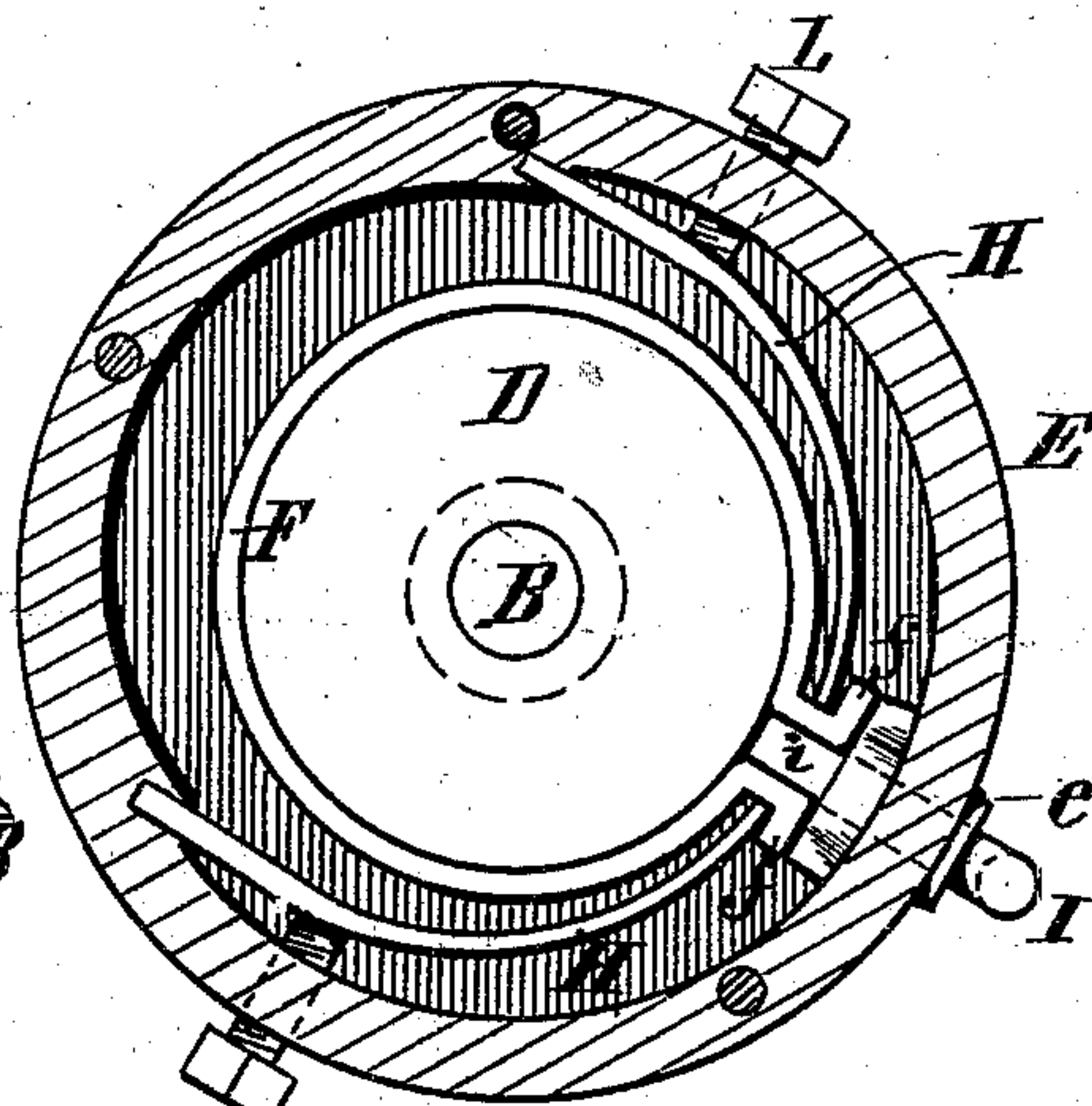


Fig. 2

Witnesses

Geo. M. Rice 2<sup>d</sup>  
L. H. Barton

Inventor

Samuel E. Hildreth  
By Chas. H. Burleigh  
Att'y.



# UNITED STATES PATENT OFFICE.

SAMUEL E. HILDRETH, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF  
ONE-HALF OF HIS RIGHT TO DAVID W. POND, OF SAME PLACE.

## METAL-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 224,534, dated February 17, 1880.

Application filed October 25, 1879.

*To all whom it may concern:*

Be it known that I, SAMUEL E. HILDRETH, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain  
5 new and useful Improvements in Metal-Plan-  
ing Machines; and I declare the following to  
be a description of my said invention, suffi-  
ciently full, clear, and exact to enable others  
skilled in the art to which it appertains to  
10 make and use the same, reference being had  
to the accompanying drawings, which form a  
part of this specification, and in which—

Figure 1 represents a front view of such  
15 parts of a planer mechanism as are necessary  
to illustrate the nature of my invention. Fig.  
2 is a front view of the frictional feed devices  
with the face-plate removed. Fig. 3 is a sec-  
tional view on line *x x*, showing the ends of  
the friction devices; and Fig. 4 is a central  
20 section on line *y y*, Fig. 1.

This invention relates to the peculiar con-  
struction of frictional feed devices employed  
in metal-planing machines for operating the  
parts which carry the cutting-tool to a proper  
25 position for taking the required chip or shav-  
ing from the work; and it consists in a planer-  
feed-operating mechanism having parts con-  
structed and arranged in the peculiar manner  
hereinafter described.

30 This invention is applicable to planing-ma-  
chines of ordinary construction; and it will be  
understood that such parts of the machine as  
are not herein shown and described may be  
constructed, arranged, and operated in the  
35 usual or any suitable manner.

In the drawings, A denotes the frame of the  
machine. B indicates the shaft by which the  
feeding devices and table-driving gear are op-  
erated, and C indicates the pitman or rod by  
40 means of which the rack and feed gears are  
actuated to move the tool-supporting head.  
D indicates a hub or friction-head rigidly  
fixed to the end of the shaft B and having a  
plain smooth surface at its periphery. Said  
45 head D is surrounded by a circular casing or  
disk-wheel, E, the latter being centrally sup-  
ported to turn freely on the shaft B or on a  
projecting part, *d*, at the back of the head D.

50 Surrounding and fitting the periphery of the  
head D is a flexible metallic band, F, having

its ends *f f*, which nearly meet each other and  
are set outward and backward, supported by  
the ends of flat steel springs H H, the oppo-  
site ends of which are secured to the flange or  
rim of the casing-wheel E. Said springs press  
55 the ends of the flexible band F toward each  
other, and cause said band to hug the surface  
of the head D.

A spindle or stud, I, having a cross-head, *i*,  
is arranged through a suitable journal-bear- 60  
ing, *e*, formed in a radial position through the  
rim of case E, the cross-head *i* occupying a  
position between the ends *f f*, the faces of  
which are parallel with each other, as indi-  
cated in Figs. 2 and 3.

65 From the outer end of the stud I an arm or  
lever, I', extends back at a right angle, or  
nearly so, and is arranged to engage with the  
lugs or stop-pieces K, attached to a projecting  
portion, A', of the frame A.

70 Set-screws L L are arranged in the rim of  
the case E, with their ends pressing on the  
backs of the springs H, for adjusting the ten-  
sion of said springs.

A face-plate, E', is bolted to the front of the 75  
case E, which covers and securely incloses the  
friction-head D, band F, and springs H, and  
protects them completely from the entrance of  
chips and dust to the working parts. On the  
front of the plate E' is arranged the dovetailed 80  
guideways *m*, which retain the adjustable  
crank-pin and screw mechanism by which the  
rod C is attached and its movement regulated.

The operation is as follows: When the arm  
I' is free the force of the springs H causes the 85  
flexible band F to embrace the head D, creat-  
ing sufficient friction to move the disk or cas-  
ing wheel E and parts connected therewith.  
The shaft B, revolving, carries the part E with  
it until the arm I' strikes one of the stop-lugs 90  
K, which, by retarding the end of said arm,  
oscillates the stud I, causing the cross-head *i*  
to assume an inclined position between the  
ends *f f* of the band F, overcoming the force of  
the springs H and effecting the expansion of 95  
said band, so as to release its frictional con-  
tact with the surface of the head D, and ar-  
resting the movement of the disk-wheel E,  
while the shaft and head continue their move-  
ment without strain or drag of the friction- 100



surfaces. When the motion of the shaft B is reversed the arm I' ceases to press the lug K, the springs again close the friction-band, and the wheel E is moved back until the arm I' strikes the opposite lug K, when, by an opposite angular position of the cross-head i, the friction is again released.

By constructing and arranging the parts as described a very powerful frictional contact is obtained, which is instantly released at the proper moment. The band F being flexible fits closely the periphery of the head D, while its efficiency is not injuriously affected by wear of the contact-surfaces.

The power of the clutch can be very nicely adjusted by means of the screws L, and the device is thus enabled to feed forward the tool with a longer and more positive action than is attained with the frictional feed devices in common use, while all of the wearing parts, being completely inclosed from dust and chips, are rendered very durable and are not subject to accidental derangement.

I do not herein make claim, broadly, to the feature of a peripheral friction device released by the action of an arm striking a stop, as I am aware that such feature in a differently-

constructed mechanism has heretofore been employed in a metal-planing machine.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In a feed mechanism for metal-planing machines, the combination, substantially as hereinbefore described, of the shaft-head D, with peripheral friction-surface, the flexible friction-band F, the springs H H, the wheel or disk E, and the relieving-stud I, with cross-head i, as and for the purposes set forth.

2. In a feed-mechanism for metal-planing machines, the combination, substantially as hereinbefore described, of the shaft B, with head D, the casing wheel or disk E, with close-fitting face-plate E', the flexible friction-band F, with outward-turned ends f f, the curved springs H H, the adjusting-screws L L, the relieving-stud I, with head i and arm I', and the stops or lugs K K, constructed and operating as set forth.

Witness my hand this 22d day of September, A. D. 1879.

SAMUEL E. HILDRETH.

Witnesses:

CHAS. H. BURLEIGH,  
S. R. BARTON.