

(No Model.)

2 Sheets—Sheet 1.

M. B. REIGH.

THREAD UNWINDING DEVICE FOR SEWING MACHINES.

No. 477,611.

Patented June 21, 1892.

Fig. 1.

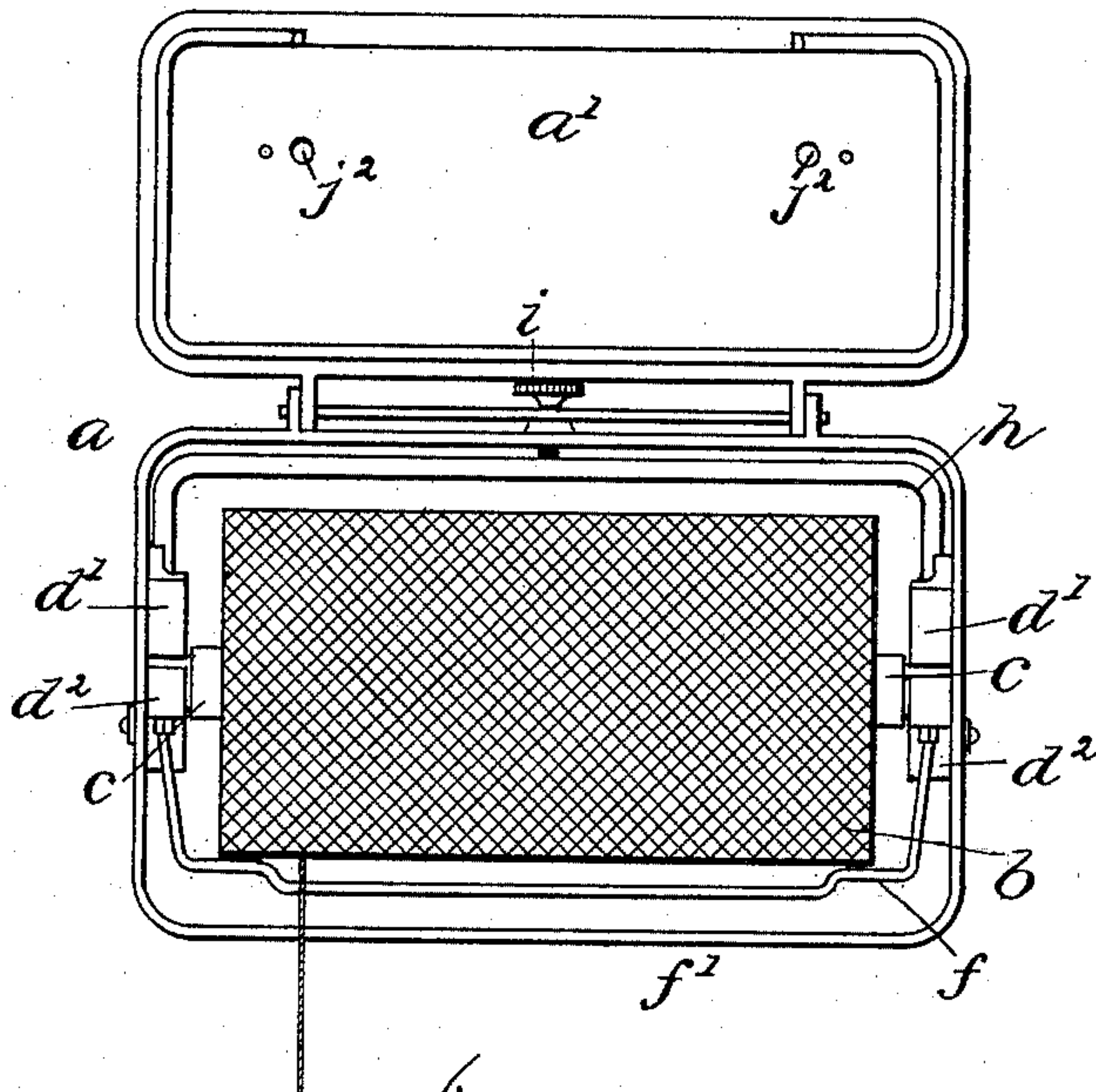
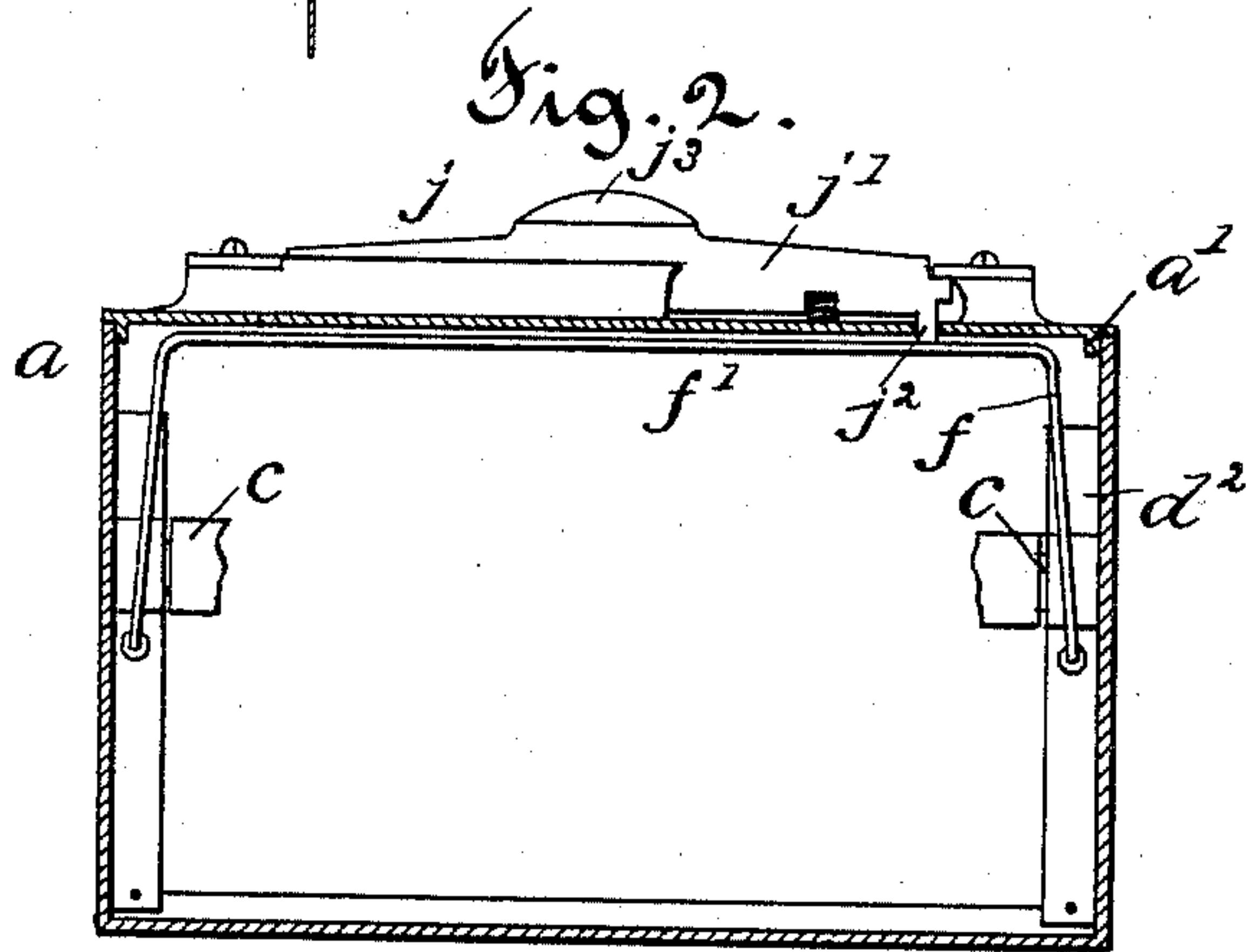


Fig. 2.



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2 Sheets—Sheet 2.

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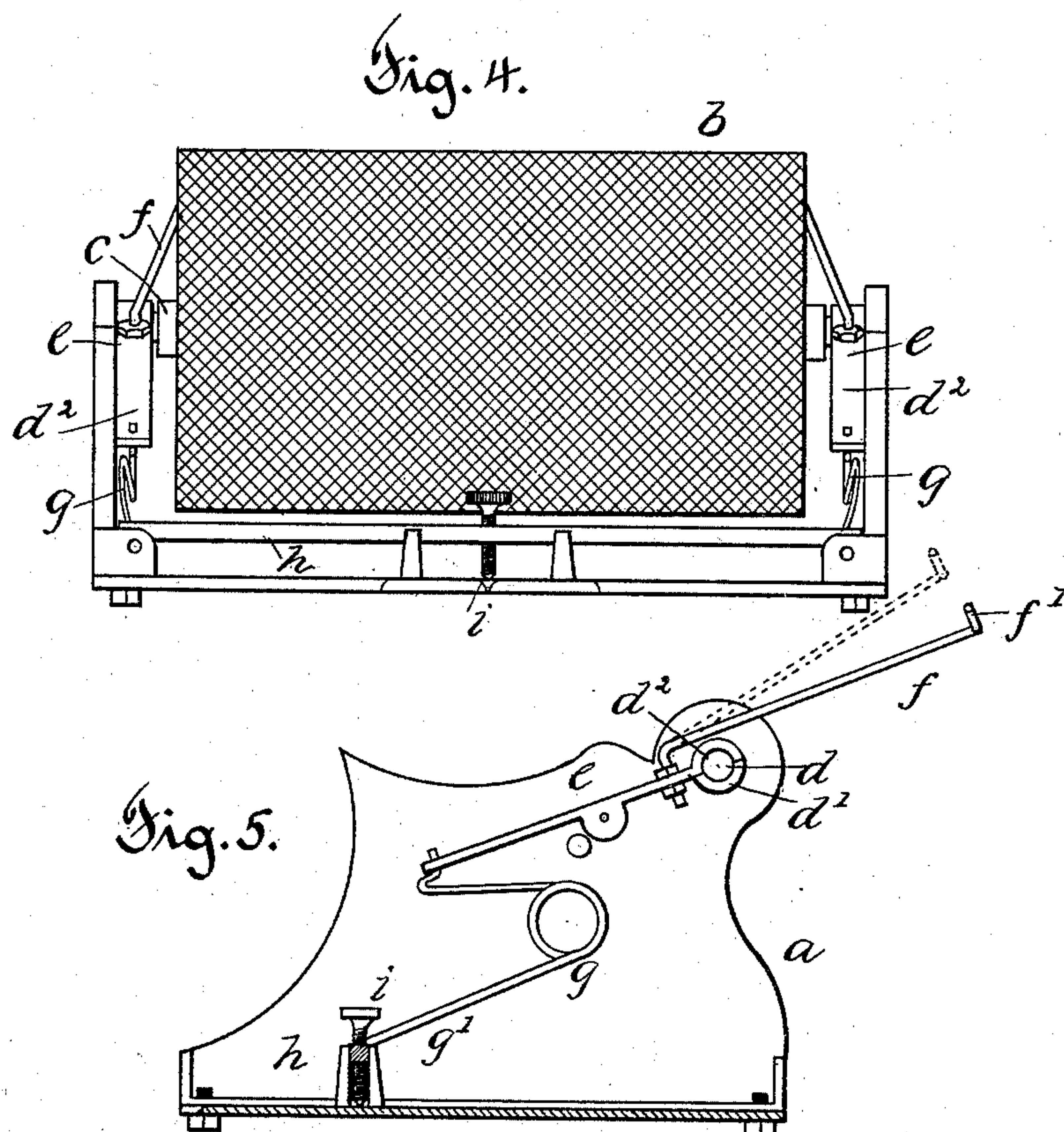
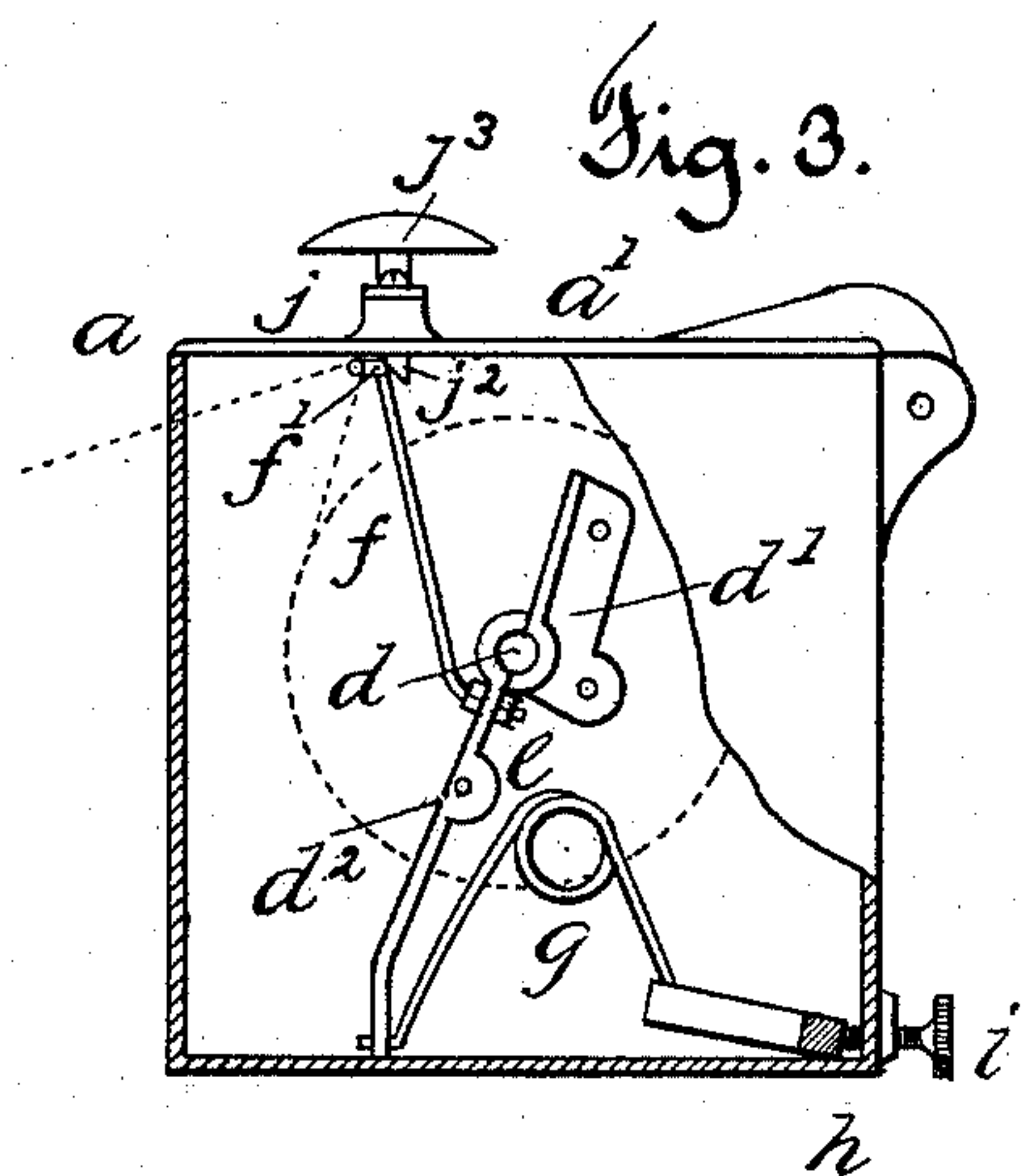
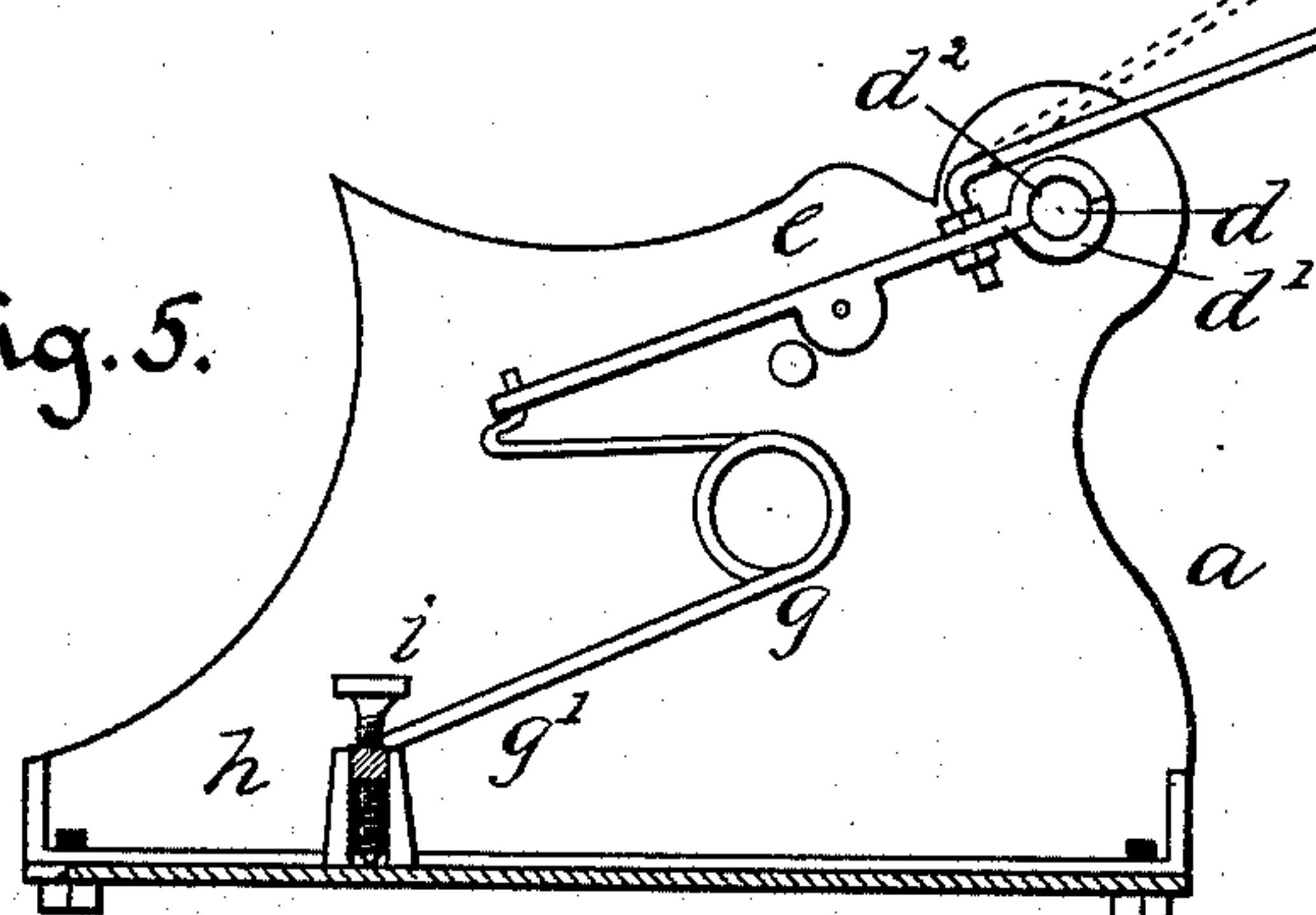


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## THREAD-UNWINDING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 477,611, dated June 21, 1892.

Application filed November 2, 1891. Serial No. 410,626. (No model.)

*To all whom it may concern:*

Be it known that I, MARK B. REIGH, of Bos-  
ton, in the county of Suffolk and State of Mas-  
sachusetts, have invented certain new and  
5 useful Improvements in Thread-Unwinders,  
of which the following is a full, clear, and ex-  
act description, whereby any one skilled in  
the art can make and use the same.

The object of my invention is to provide a  
10 device by means of which a mass of thread  
wound in any convenient form may be sup-  
ported and controlled while the thread is be-  
ing unwound, so as to provide for an even  
tension of the thread, the device being ap-  
15 plicable to any form of machine in which a  
supply of thread under an even tension is re-  
quired to be delivered to it.

To this end my invention consists in de-  
tails of the several parts making up the thread-  
20 support and the tension mechanism, and in  
the combination of such parts, as more par-  
ticularly hereinafter described, and pointed  
out in the claims.

Referring to the drawings, Figure 1 is a de-  
25 tail plan view of an unwinder in the form  
especially adapted for use in connection with  
the McKay boot-sewing machine. Fig. 2 is a  
detail front view of the same with part of the  
box broken away to show construction. Fig.  
30 3 is a detail end view of the same with parts  
broken away. Fig. 4 is a detail front view of  
a modified form of an unwinder embodying  
my invention. Fig. 5 is a detail view, in cen-  
tral section, through the unwinder, showing  
35 the mass of thread removed.

In the accompanying drawings the letter *a*  
denotes a frame, box, or bracket that is adapt-  
ed to support a mass of thread *b*, that is wound  
either upon a spool or upon a spindle *c*, the  
40 office of the part *a* being to form a support  
for the mass of thread *b* while the latter is  
being unwound. The structure shown in Figs.  
1 to 3 of the drawings is one particularly  
adapted for use on a McKay boot-sewing ma-  
45 chine, the box being secured to the rotary  
table in a convenient position for supplying  
the thread to the needle of the machine. No  
part of such machine is shown in the draw-  
ings, as it is only indirectly related to my  
50 within-described invention.

In the box *a*, at the opposite ends, sockets  
*d* are provided for the reception of the ends

of the spindle *c*, and such sockets are prefer-  
ably made in two sections, a part *d'* being se-  
cured to the side of the box, while the other 55  
part *d''* is formed in the end of a brake or  
clutch part *e*, which is pivoted to the side of  
the box in such position as to enable the ends  
of the spindle that rest in the sockets to be  
held with a frictional grasp between these 60  
two parts of the socket *d*. This brake or  
clutch part *e* in the form shown in the draw-  
ings is a lever pivoted to the side of the box  
or frame and having secured to the brake  
a thread-support *f*, that extends from side 65  
to side of the box or frame in proper posi-  
tion to act as a guide and support for the  
thread as it is unwound from the mass. A  
spring *g* is attached to the box or frame *a*,  
with one arm thrusting against the lever *e* in 70  
such manner as to cause it to hold the mass  
of thread with a frictional grasp against un-  
winding by holding the spool or spindle  
against a rotary movement in its bearings or  
socket-supports. The other end *g'* of the 75  
spring is in contact with a bar *h*, that is ad-  
justable by means of a thumb-screw *i*, that  
passes through a threaded socket in the box  
and engages the bar in such manner as to  
enable a greater or less degree of tension to 80  
be put upon the spring *g* by turning the ad-  
justing-screw *i*. The thread-support *f* has an  
offset portion *f'*, that controls the position of  
the thread as it is unwound from the mass  
and prevents it from moving so far to either 85  
end as to cause the thread to slip off the end  
upon the spindle, the shoulders in the offset  
portion being formed at points a less distance  
apart than the length of the mass of thread,  
as clearly shown in Fig. 1 of the drawings. 90

The operation of the device is as follows:  
A mass of thread wound on a spindle is placed  
within the box or frame, with the ends of the  
spindle held in the sockets *d*, and the end of  
the thread is carried up on the inside of the 95  
thread-support, over it, and outward and to  
any point where the thread is to be used, as  
to the needle of a sewing-machine. The pull  
upon the thread in such use in sewing acts  
upon the thread-support as on a lever and 100  
tends to release the grasp of the brake upon  
the spindles to a degree that will enable the  
mass to revolve just as fast as the thread is  
needed in use; but the instant the tension is



relieved the pull upon the thread-support is lessened and the brake or clutch part holds the spindle and prevents it from running ahead to any extent whatever. It is by such running ahead and unwinding of the thread in the old devices that alternate fast and loose stitches are formed, on account of the inequality of the tension, even where tension take-ups are used.

10 The box shown in Figs. 1 to 3 of the drawings is provided with a cover  $a'$ , and on the cover is mounted a releasing device  $j$ , that consists of a bar  $j'$ , having downturned ends  $j^2$ , that project from the cover and bear cams that are adapted to engage the thread-support in such manner that by depressing the releasing device the hold of the brake or clutch upon the mass will be released, so that the mass of thread will freely revolve and allow the thread to be used with very slight resistance, this freedom of movement of the thread being needed when the first few stitches are being taken in beginning with a new end. This releasing device has a somewhat broad pad  $j^3$  in convenient position on top of the box to be pressed upon by the hand of the operator of the sewing-machine, the box being, as already stated, secured to the frame of a boot-sewing machine in convenient position for use.

30 In the form of the invention embodied in the structure shown in Figs. 4 and 5 a frame or bracket forms the immediate support for the tension mechanism and for the mass of thread, and the method of operation is substantially the same as that in the form of device already described.

The modified form of the invention shown in Figs. 4 and 5 differs from the form previously described mainly in the fact that instead of inclosing the mass of thread in a box it is supported by a frame or bracket in an exposed position; but the tension device comprises, substantially, the same clamping-arms arranged to form a pivot-bearing for the spindle, and the adjusting means and thread-guide are united to the clamp in the manner

substantially the same as in the first form described.

I claim as my invention—

1. In combination with a frame adapted to support a mass of thread wound upon a spindle, the spindle-sockets  $d$ , formed in part by the side of the support, with a socket part  $d^2$ , formed in the end of the clutch part  $e$ , the spring-supported clutch part  $e$ , and the thread-support  $f$ , secured to the clutch parts  $e$  on opposite sides of the mass of thread and provided with an offset portion  $f'$ , all substantially as described.

2. In combination with a case having a cover, the spindle-supports formed within the case at opposite ends, the friction-clutches arranged adjacent to said spindle-supports and forming part of the spindle-sockets, the adjustable clutch-springs, with means for adjusting the tension of the same, the thread-guide secured to the movable parts of the clutch and extending lengthwise of the mass of thread and having the offset portion less in length than the mass of thread, and the clutch-releasing mechanism borne on the cover of the box and having the cam-shaped studs adapted to engage the thread-support, all substantially as described.

3. In combination with a case having a cover, the spindle-supports formed within the case at opposite ends, the friction-clutches arranged adjacent to said spindle-supports and forming part of the spindle-sockets, the adjustable clutch-springs, with means for adjusting the tension of the same, the thread-guide secured to the movable parts of the clutch and extending lengthwise of the mass of thread, and the clutch-releasing mechanism borne on the cover of the box and having the cam-shaped studs adapted to engage the thread-support, all substantially as described.

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