

(No Model.)

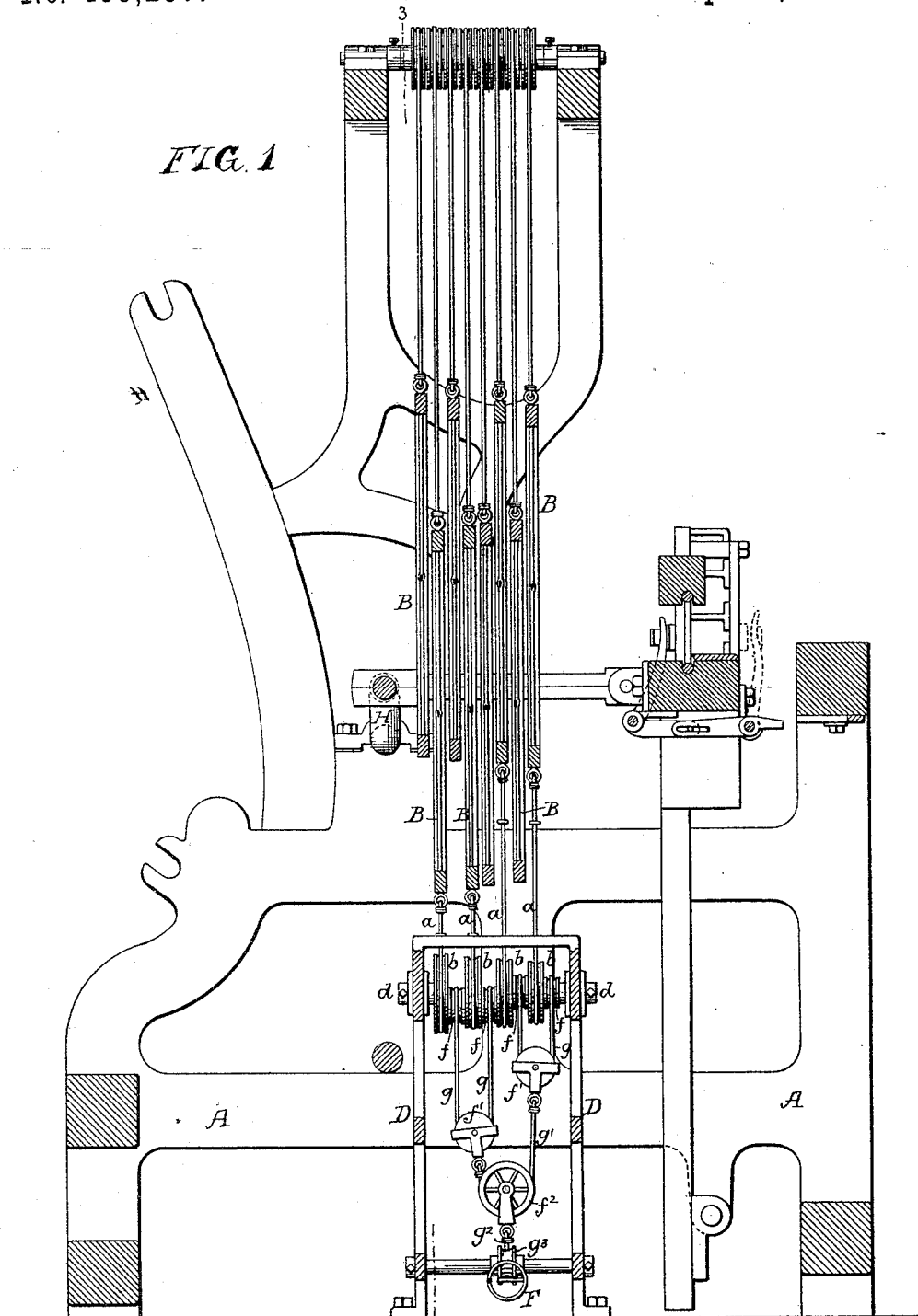
2 Sheets—Sheet 1.

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SHEDDING MECHANISM FOR LOOMS.

No. 459,257.

Patented Sept. 8, 1891.

FIG. 1



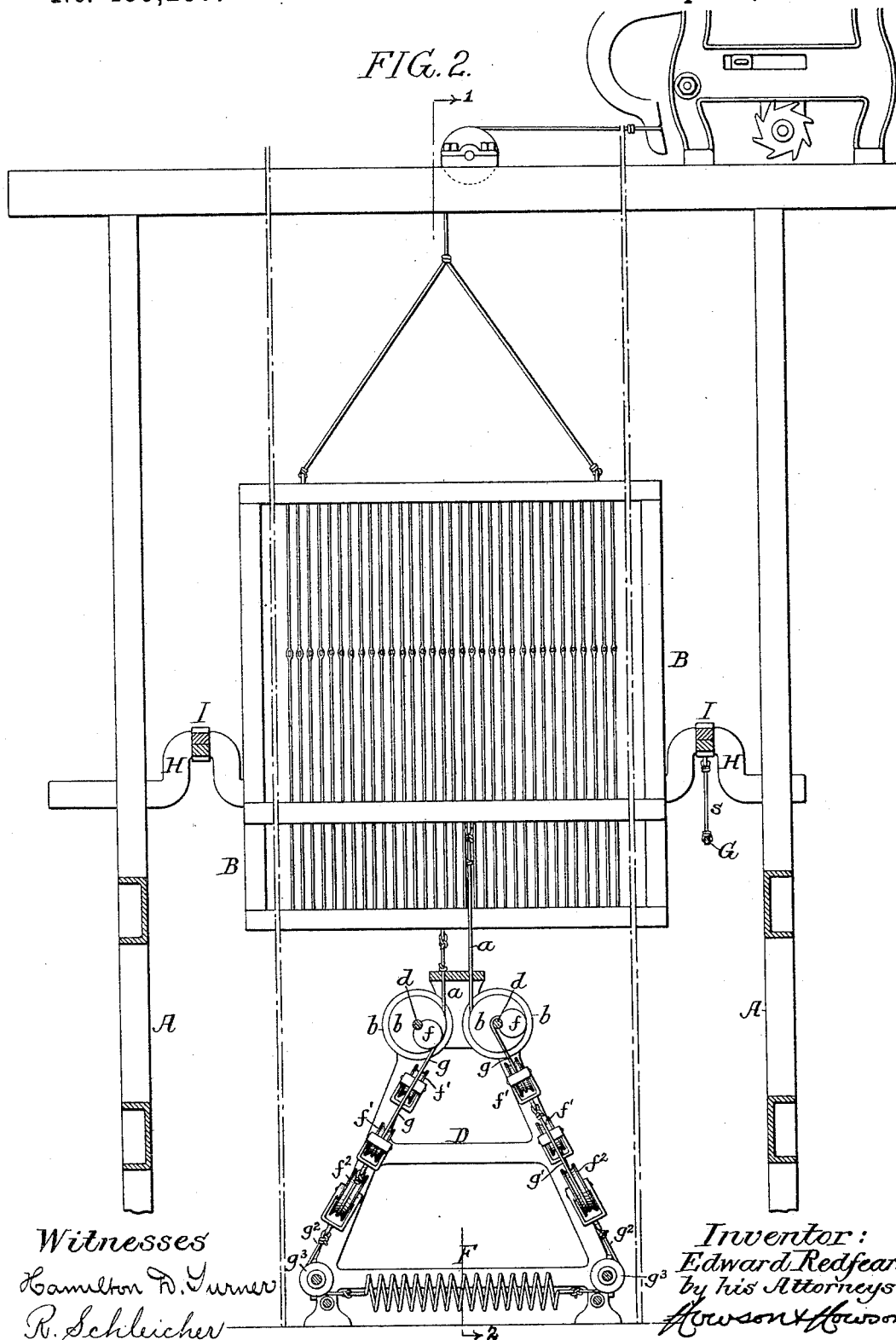
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# UNITED STATES PATENT OFFICE.

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## SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 459,257, dated September 8, 1891.

Application filed November 6, 1890. Serial No. 370,527. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD REDFEARN, a subject of the Queen of Great Britain and Ireland, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Shedding Mechanism for Looms, of which the following is a specification.

The object of my invention is to so connect a retracting-spring or series of springs to the heddles of a loom that while full power will be exerted to hold each heddle in its lowermost position when down the power will gradually decrease as the heddle is raised, so that the lift of the heddles is facilitated and the heddle mechanism thereby relieved from undue strain. This object is attained by the use of an eccentric connection for the spring, as fully described hereinafter.

In the accompanying drawings, Figure 1 is a longitudinal section on the line 1 2, Fig. 2, of sufficient of a loom to illustrate my invention; and Fig. 2 is a transverse section on the line 3 4, Fig. 1.

A represents part of the frame-work of the loom, and B a series of heddles mounted in the loom as usual and operated by any ordinary form of heddle mechanism. To the lower bar of each heddle is secured a cord *a*, which is connected to a drum or pulley *b*, mounted upon a shaft *d* in a suitable framework D beneath the heddles and alongside of each drum *b*, and secured thereto is a smaller drum *f*, eccentric in respect to said drum *b*, and to each of these eccentric drums *f* is connected a cord *g*, which is likewise connected to the spring whereby the depression of the heddle is effected. A single spring is used for a series of heddles, said spring being caused to act upon a series of cords *g* through the medium of a system of interposed multiplying pulleys and cords. For instance, in the drawings the cords *g* of a pair of drums *f* are connected and pass around a pulley *f*<sup>1</sup>, and two of these pulleys are connected to a cord *g*<sup>1</sup>, passing around a pulley *f*<sup>2</sup>, a cord *g*<sup>2</sup> extending from the latter around a guide-pulley *g*<sup>3</sup>, and thence to one end of the spring F, the opposite end of which is provided with

similar tackle, so that the single spring acts upon the entire eight heddles, and by still further elaborating the tackle one spring might be caused to act upon sixteen heddles or even upon thirty-two heddles, if desired. The eccentric drums *f* are so located in respect to the drums *b*, which are connected to the heddle-cords, that when a heddle is down the cord *g* will exert its pull upon the eccentric drum at a point as far from the shaft or axis of said drum as possible, as shown, for instance, at the left hand in Fig. 2, and hence the spring will exert its greatest power upon the drum *b* and its maximum effect in depressing the heddle to form the lower part of the shed; but as the heddle is lifted the point at which the cord *g* exerts its pull upon the eccentric drum *f* approaches nearer and nearer to the shaft or axis of the drum. Hence there is less and less of a downward pull upon the heddle, so that the final portion of the lift to form the upper part of the shed can be effected with but slight effort. By this means I am enabled to utilize the full power of the spring at the time when it is most needed—that is to say, at the time when the heddle is approaching the limit of its downward movement, while the power of the spring is practically neutralized as the heddle approaches the limit of its upward movement. The lifting of each heddle, however, effects a certain amount of stretching of the spring. Hence the more heddles there are lifted the stronger will be the pull upon the heddles which are down.

The drums *b*, to which the heddle-cords *a* are connected, are of varying diameter, as shown in Fig. 1, to accord with the varying lift of the heddles in forming the shed, so that the rear heddles, which are lifted the highest, will not impart any greater movement to the eccentric drums *f* than the front heddles, which are lifted the least.

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

1. The combination of a series of heddles, a spring for depressing the same, a series of drums connected to the heddles, a series of

drums connected to said heddle-drums, but eccentric in respect thereto, and multiplying tackle whereby the spring is connected to each of said eccentric drums, substantially  
5 as specified.

2. The combination of a series of heddles, a spring for depressing the same, a series of drums of varying diameter connected to said heddles, and a series of eccentric drums con-

nected to said heddle-drums and to the spring, so substantially as specified.

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

EDWARD REDFEARN.

Witnesses:

EUGENE ELTERICH,  
HARRY SMITH.