

No. 679,397.

Patented July 30, 1901.

C. A. A. RAND.
GRAIN BINDER.

(Application filed Dec. 22, 1900.)

(No Model.)

Fig. 1.

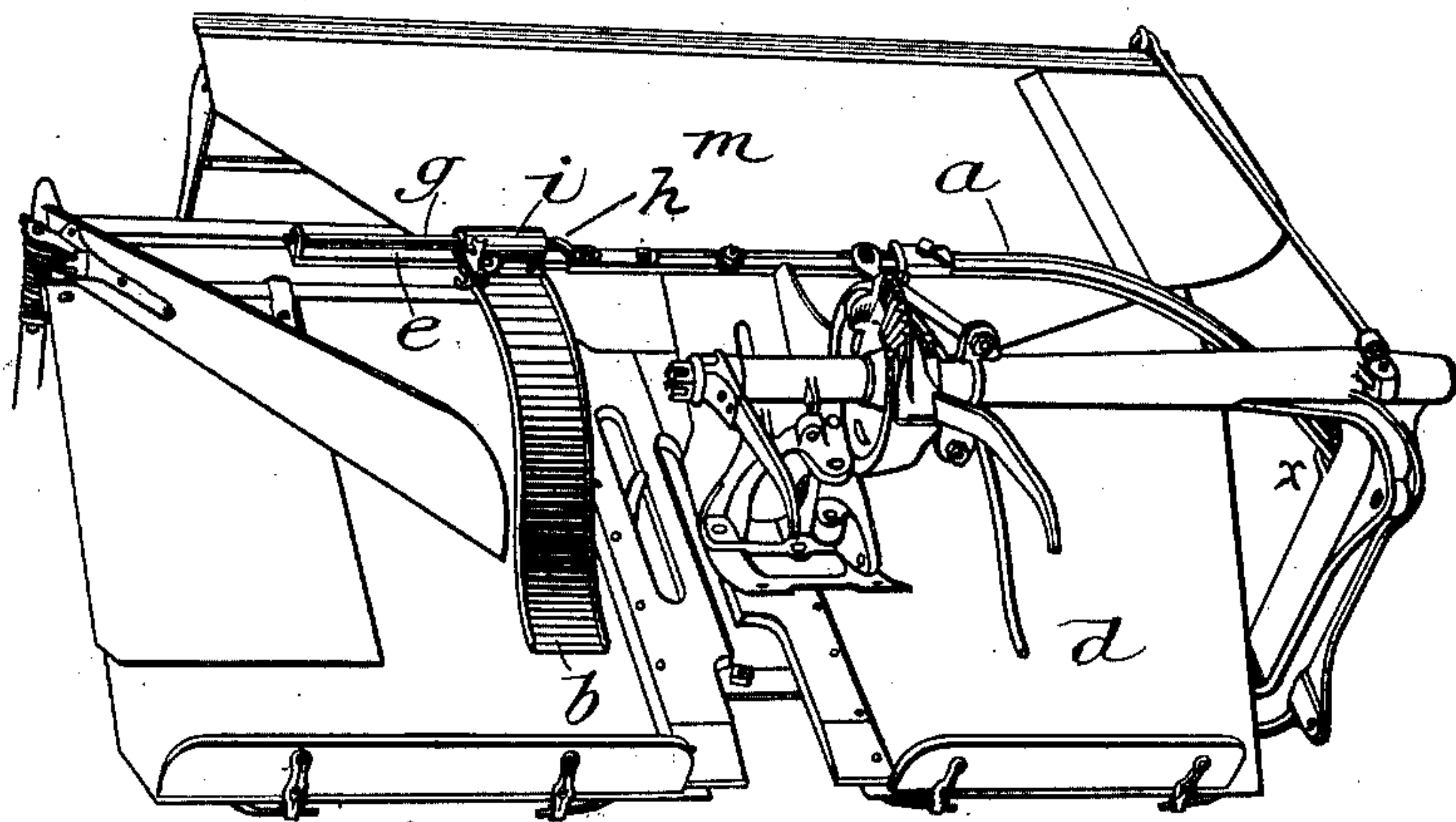


Fig. 2.

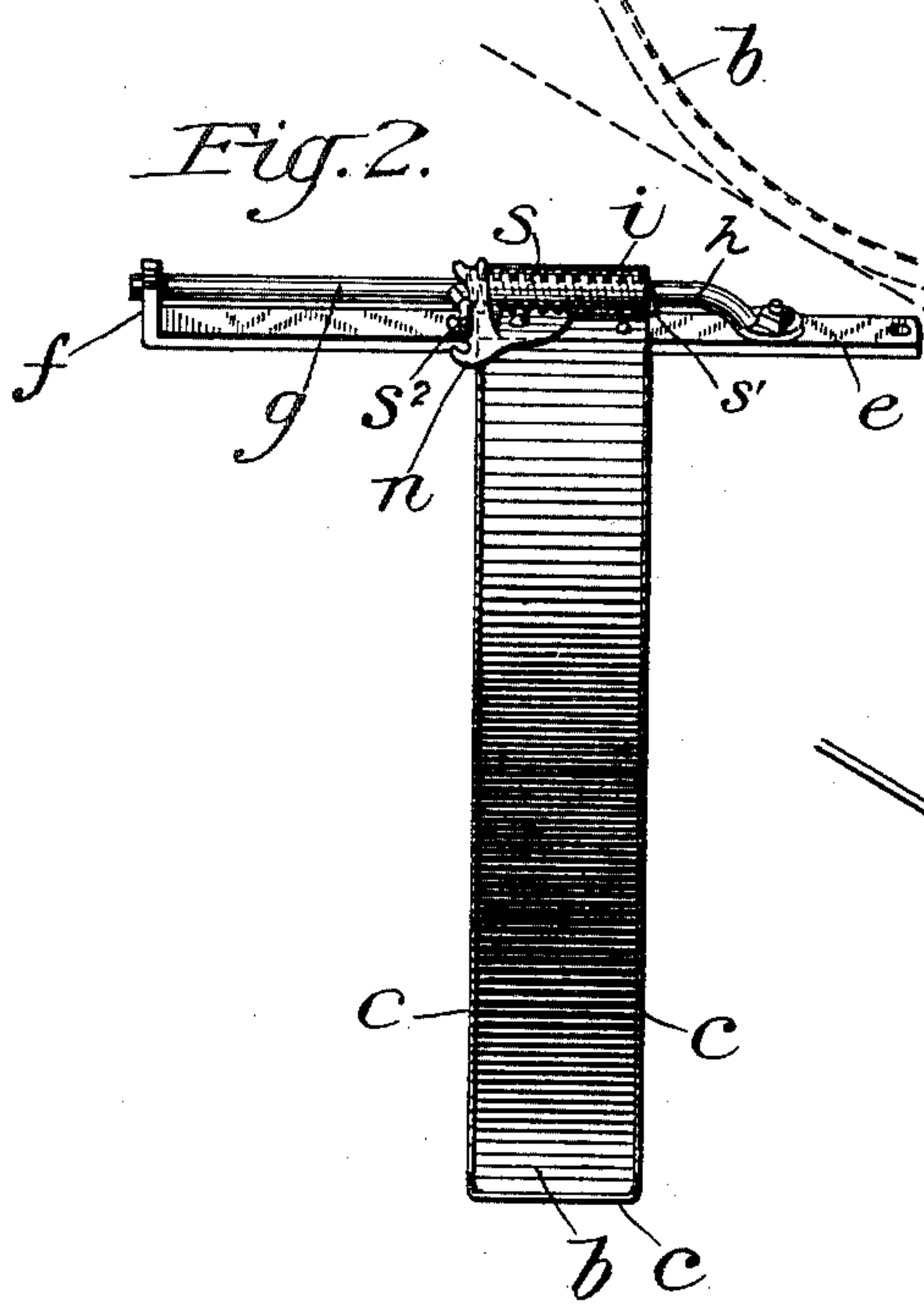
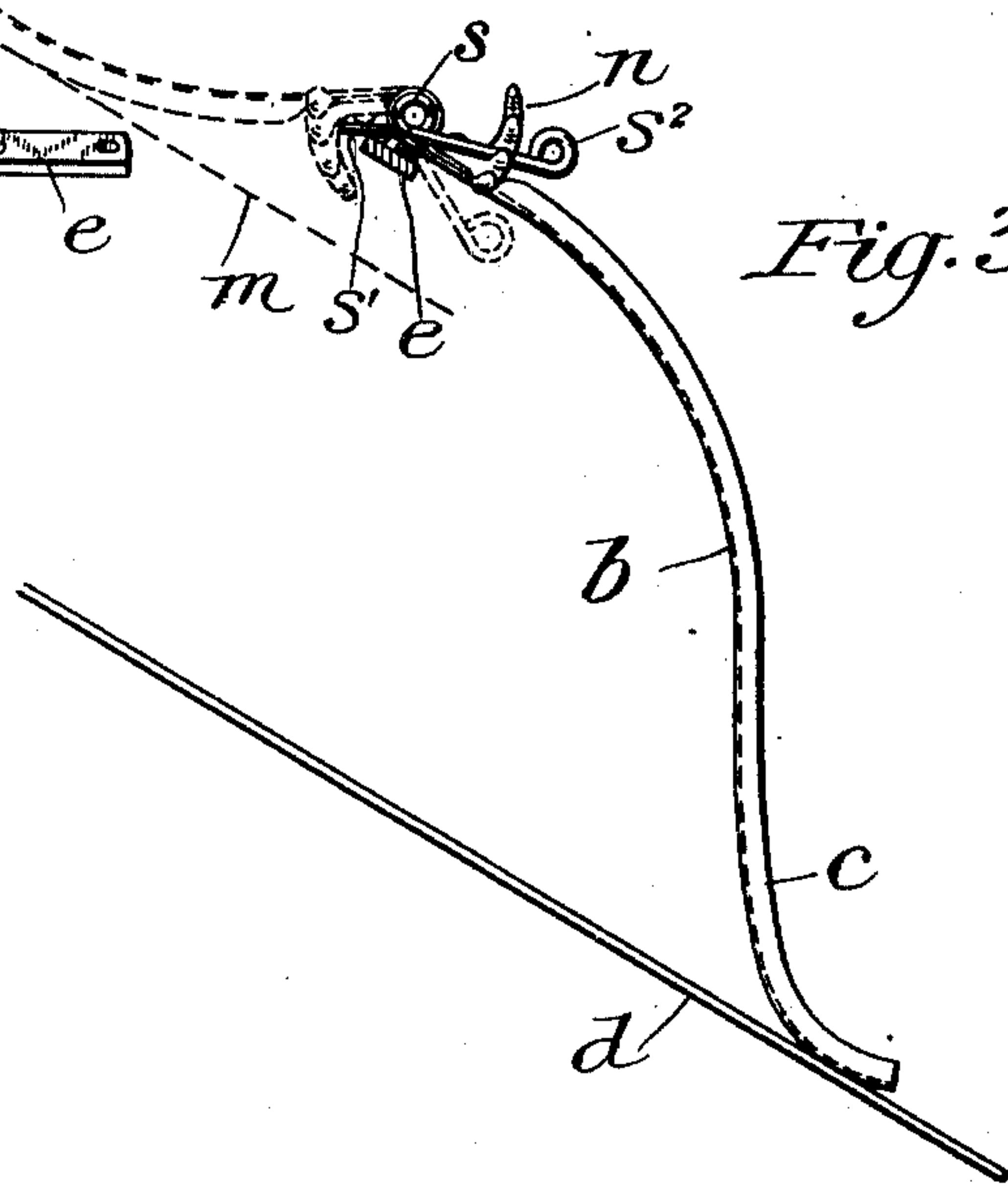


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES ALFRED ANDERSON RAND, OF CHICAGO, ILLINOIS.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 679,397, dated July 30, 1901.

Application filed December 22, 1900. Serial No. 40,749. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALFRED ANDERSON RAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to machines for automatically binding grain, corn, and the like, and has special reference to that part of the machine which has for its object to present the grain properly to the parts which put the band around the gavel and tie the knot in the ends.

The particular object of the invention is to provide an improved construction of retarder for the heads of the grain, so that the same may be temporarily held back in proper relation to the binding and compressing devices until the completed bundles are ready to be discharged from the machine.

The improvement is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the binder attachment of a self-binding harvester having my heads-retarder attached. Fig. 2 is a front or outside view of the retarder detached from the machine; and Fig. 3 is an edge view of the retarder, showing in dotted lines how it may be thrown up out of action.

Referring to the views, *a* denotes what is known as the "spring-rail" of the binder, which is a bar secured at one end to the binder-frame, usually to the vertical post, as shown at *x* in Fig. 1, and extends inward and then horizontally parallel with the overhanging arm of the binder-frame which carries the knotting mechanism. Its function is well understood, and its construction does not differ from those heretofore in use, except in so far as it is provided with the means hereinafter described for attaching and supporting the retarder.

The retarder is made out of a plate *b*, of thin sheet metal, having its edges *c* upturned, as shown in the drawings, to stiffen it. It is preferably curved, as is indicated in Figs. 1 and 3, and is of sufficient length to reach the

deck *d* of the binder. The other dimensions of the plate are matters of minor importance, as it may be made of any width desired.

At its rear end the spring-rail is provided with an extension *e*, bolted thereto and forming practically a continuation of the rail. The outer end of this extension is turned up, as at *f*, and affords a bearing for the corresponding end of a rod *g*, which has a downwardly-curved footpiece *h*, that is bolted near the forward end of the extension and which with the turned-up end *f* raises the rod *g* slightly above the level of the rail *a*.

The retarder-plate is pivotally connected to the rod *g* by having its upper end curled or turned over into an eye *i*, so as to encircle the rod. The rod passes loosely through this eye and is of sufficient length to permit the retarder to be adjusted in a fore-and-aft direction, so as to accommodate longer or shorter grain. It will be understood from this that the rod *g* forms a hinge or pintle on which the retarder-plate turns freely. In order, however, for the plate to perform its retarding function on the stream of grain passing beneath the rail, it must be held down with an elastic or resilient pressure which should also be adjustable to adapt it to various kinds and conditions of grain. I therefore further connect the retarder to the rod *g* by means of a spring *s*, which is coiled around the rod inside of the loop or eye formed by turning or curling the upper edge of the plate *b* around the rod. One end *s'* of this spring projects beyond the front edge of the plate and bears against the extension *e*, and the other end *s''* projects beyond the other edge and is adjustably connected therewith through the intermediacy of a series of hooks or notches *n*, formed in a casting riveted or otherwise secured to the plate *b*. The spring thus reacts between the spring-rail and the retarder-plate and holds the latter down to its work. A further function of the spring is that it serves to hold the plate at any point along the length of the rod *g* to which it may be adjusted, and the tension of the spring is adjustable by hooking its free end into any one of the series of notches *n*.

It is often desirable to throw the retarder up out of operation altogether, and the above

arrangement provides for this by permitting the spring to be unhooked from the plate when it no longer holds it down, and it may be turned up into the position shown in dotted lines in Fig. 3 and allowed to rest on the wind-guard *m*, which usually overhangs the delivery end of the elevator and serves to direct the grain onto the binder-deck.

Having thus described my invention, what I claim is—

1. In a grain-binder, the combination to form a retarder for the heads of the grain, of the spring-rail of the binder, a rod fixed horizontally thereto, a retarder plate, arm or bar pivoted upon the rod, and a spring coiled around the rod and having its outer end engaging the retarder-plate to hold it with an elastic pressure down upon the grain.

2. In a grain-binder, the combination to form a retarder for the heads of the grain, of a rod fixed horizontally to the spring-rail of the binder, a retarder plate, arm or bar pivoted upon the rod, and adjustable therealong to suit different lengths of grain, a series of adjusting-notches on the plate, and a spring coiled around the rod and having its outer end engaging the retarder-plate by being adjustable into any one of the notches.

3. In a grain-binder, the combination to form a retarder for the heads of the grain, of the spring-rail of the binder, a retarder plate, arm or bar pivotally connected therewith, and a spring coiled around the pivot and having its outer end engaging the plate, said spring being disconnectable from the plate, and the latter being adapted to be turned up in reverse position.

4. In a grain-binder, the combination to form a retarder for the heads of the grain, of a rod fixed horizontally to the spring-rail of the binder, a retarder plate, arm or bar having its inner end turned over and around said rod so as to pivotally connect it therewith, and being adjustable therealong to suit different lengths of grain, and a spring inclosed by the turned-over end of the retarder-plate and coiled around the rod, one end of said spring engaging the spring-rail, and the other engaging any one of a series of adjusting-notches on the retarder-plate.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES ALFRED ANDERSON RAND.

Witnesses:

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