No. 610,655. Patented Sept. 13, 1898.

T. R. MARSDEN.

FEEDING MECHANISM FOR CARDING MACHINES

(Application filed Sept. 28, 1897.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1

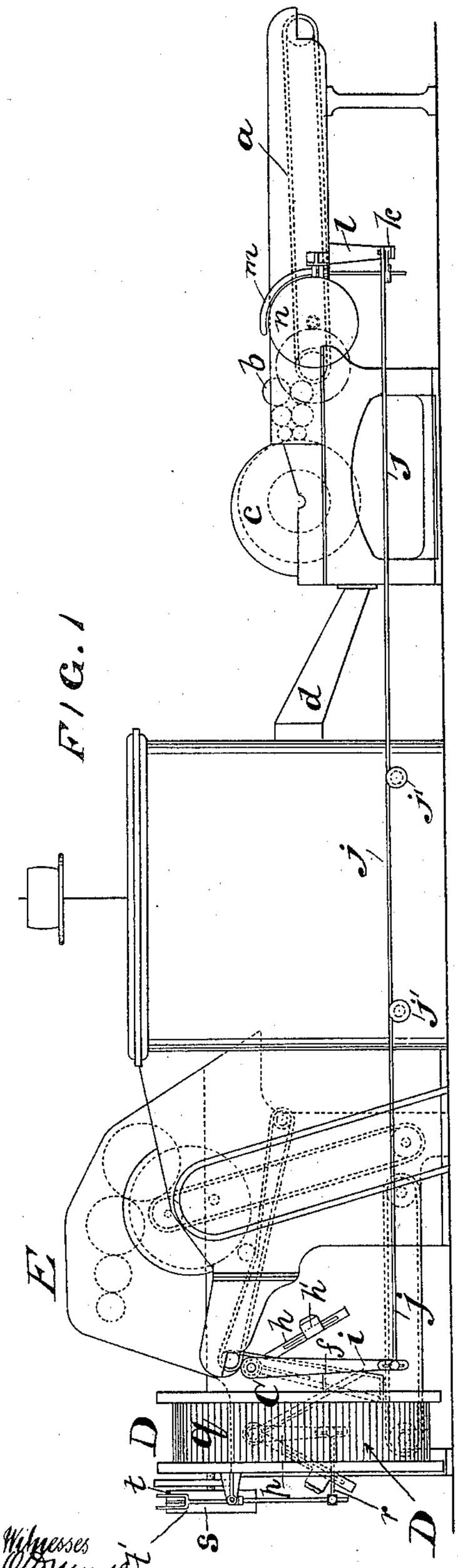

FIG. 2

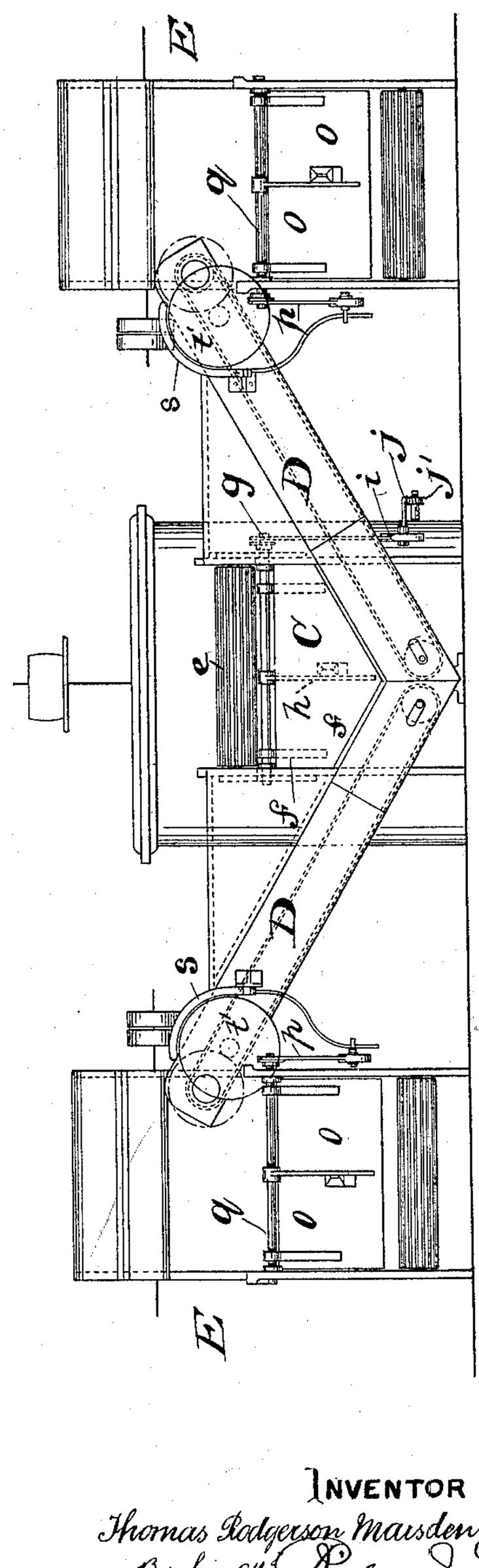

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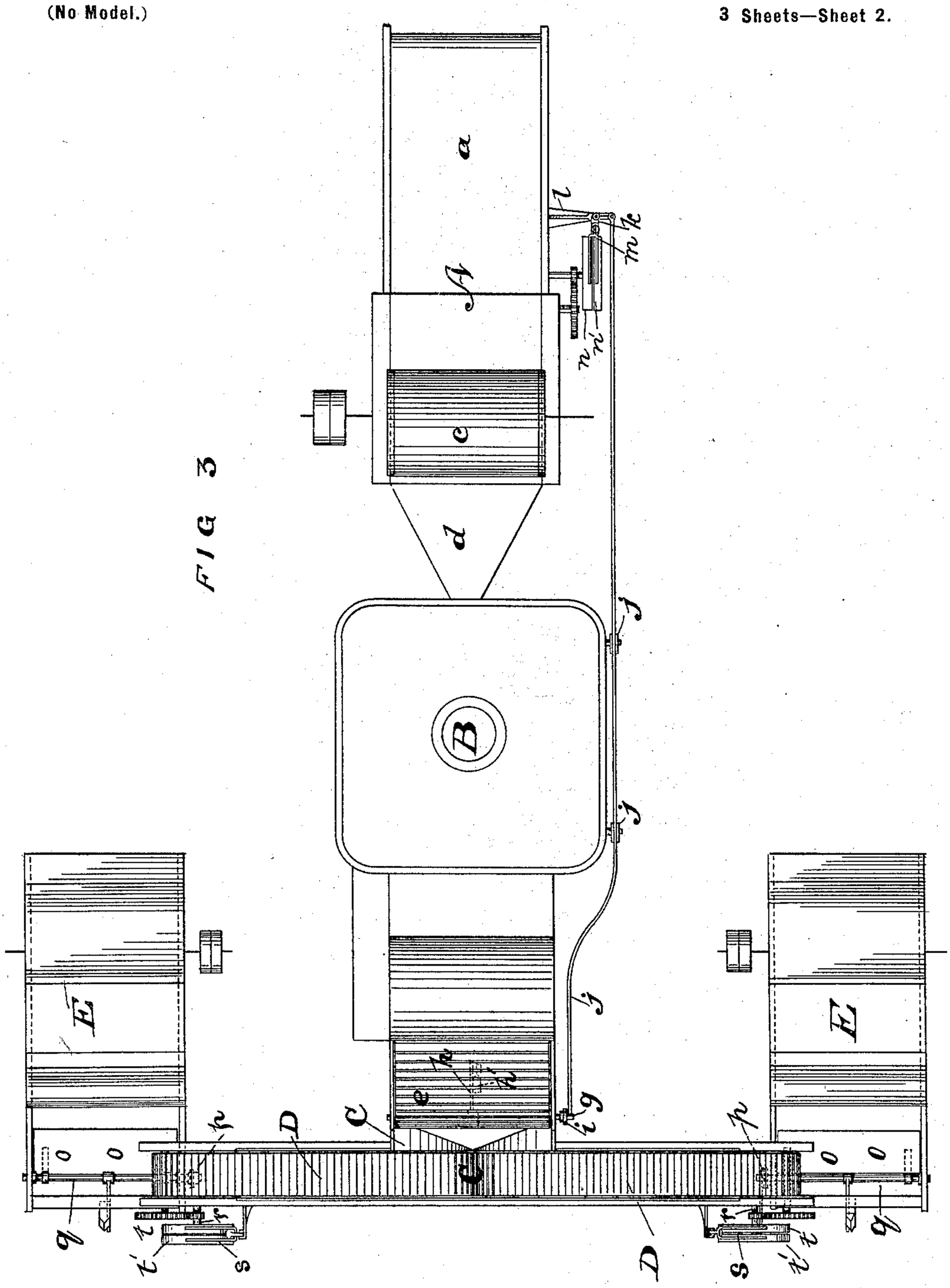
FIG 3



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(No Model.) 3 Sheets—Sheet 3.

FIG. 4

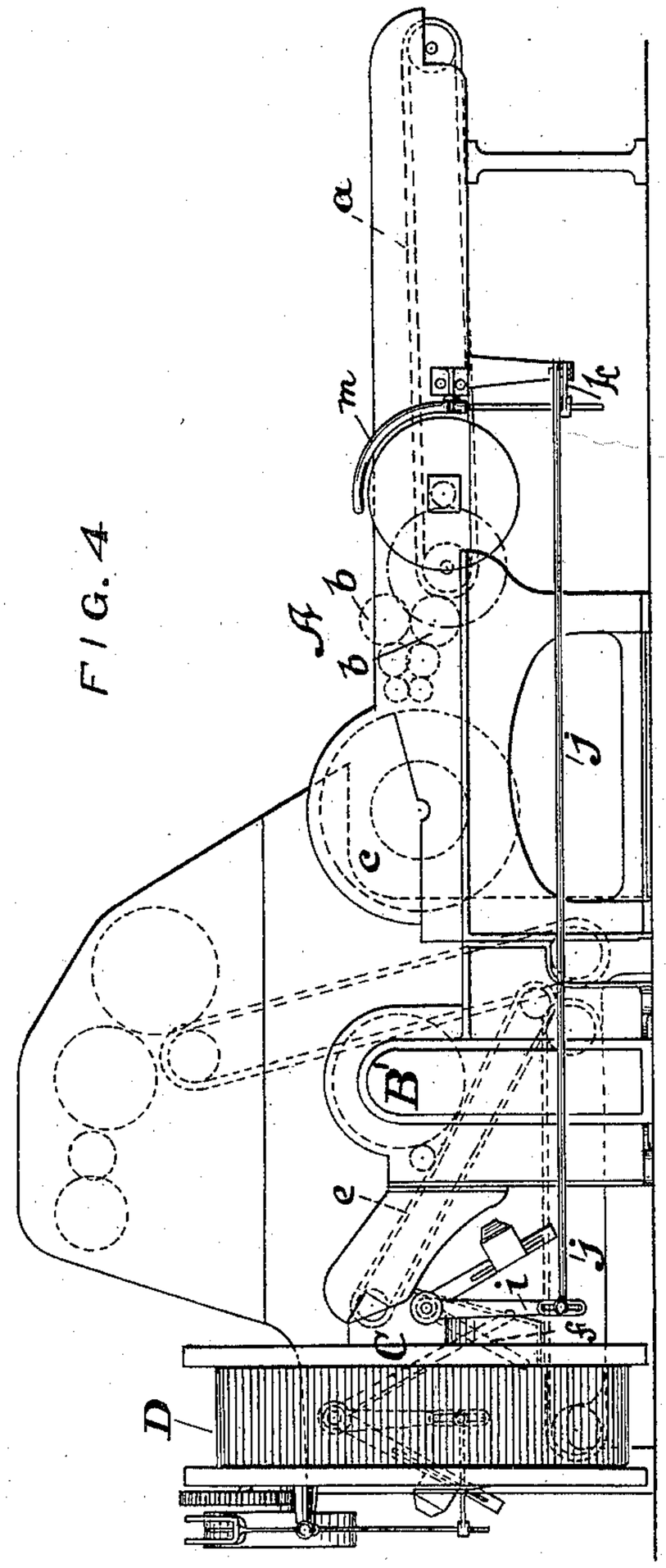
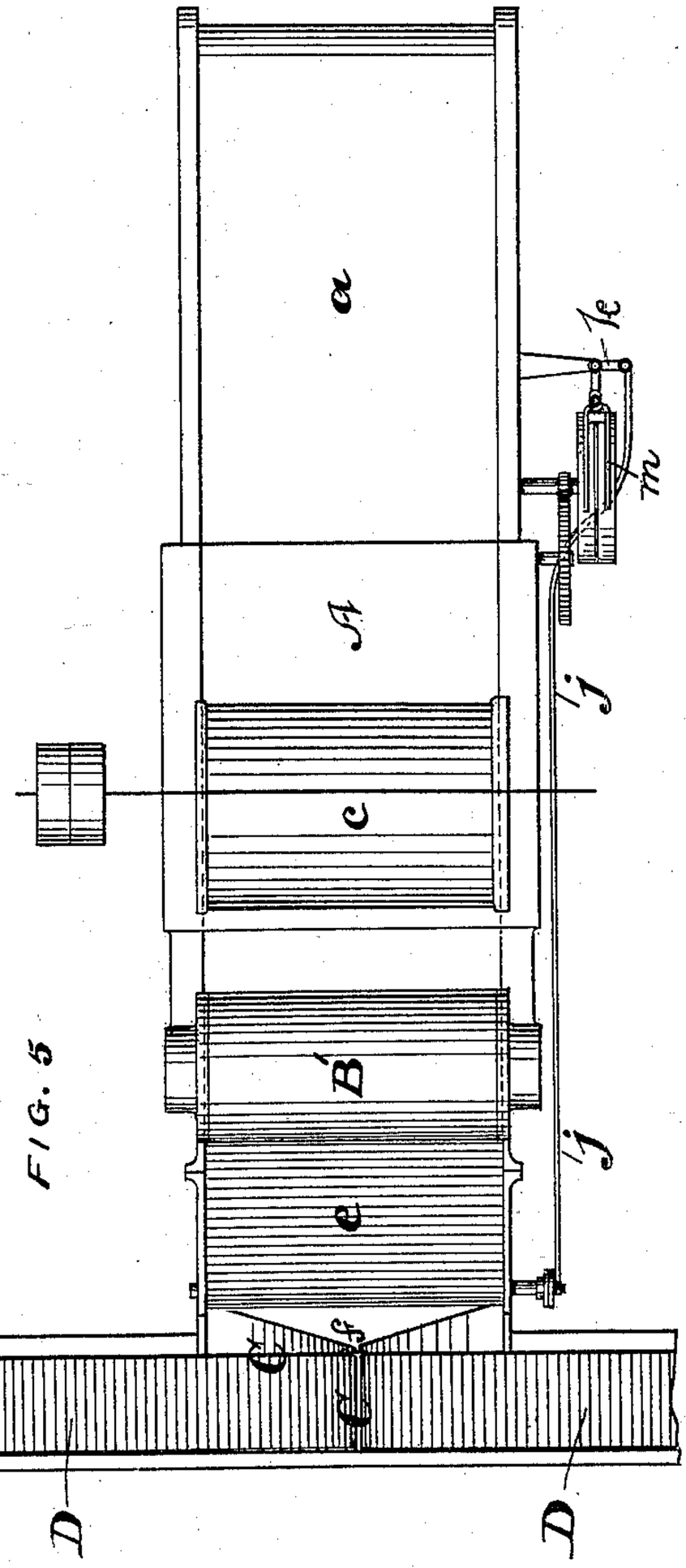


FIG. 5



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UNITED STATES PATENT OFFICE.

THOMAS RODGERSON MARSDEN, OF OLDHAM, ENGLAND.

FEEDING MECHANISM FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 610,655, dated September 13, 1898.

Application filed September 28, 1897. Serial No. 653,398. (No model.) Patented in England May 23, 1896, No. 11,283.

To all whom it may concern:

Be it known that I, THOMAS RODGERSON MARSDEN, a subject of the Queen of Great Britain, residing at Oldham, Lancaster county, England, have invented certain new and useful Improvements in Feeding Mechanism for Carding-Machines, of which the following is a full, clear, and exact description.

The invention has been patented in Great Britain, No. 11,283, dated May 23, 1896.

In an apparatus devised by me I combine the hopper-feeder with the preparatory machine in such a way that the automatic mechanism of the hopper-feeder controls not only the feeding devices leading the material to the hopper-feeder, but also controls the movements of the preparatory machine. I am thus enabled to obtain a continuous coöperation of the two sets of appliances without the intervention of any manual labor.

According to my present invention I combine hopper-feeders with a preparatory machine in such a manner as to obtain a continuous coöperation of the two sets of appliances without the intervention between them of any manual labor by introducing between them a receptacle into which the material is delivered by the preparatory machine, such receptacle being provided with lattices for carrying on the material to the hopper-feeders and also with an automatic device of its own by means of which when there is too great an accumulation of material in the receptacle the preparatory machine is stopped and again started when the accumulation has been reduced. Hence in this arrangement one or more of the hopper-feeders may be stopping while the preparatory machine is still running, or the preparatory machine may be stopping while the hopper-feeders are still running, according to the accumulations which may occur at the various points.

To render my invention clearly understood, I will now proceed to describe the same more particularly, with reference to the annexed three sheets of drawings.

On Sheet 1, Figure 1 is a side elevation of a combined apparatus arranged in conformity with my invention. Fig. 2 is an end view of Fig. 1 at the end marked *. On Sheet 2, Fig. 3 is a plan view of the apparatus shown on Sheet 1. On Sheet 3, Figs. 4 and 5 are side elevations and plan views, respectively, of a modified arrangement of apparatus also embodying my invention.

Referring first of all to Sheets 1 and 2, it may be explained that the drawings represent my invention as applied to the combination of an auxiliary "opener" A, Crighton opener B, intermediate receptacle C, feed-lattices D D, and hopper-feeders E E. The auxiliary opener is provided with a feed-lattice *a*, by which the fiber is carried forward to the breaker-rollers *b* and opening-cylinder *c*, the whole arrangement constituting an auxiliary opener of the usual construction. After passing the opening-cylinder *c* the fiber enters the opener B by a trunk or pipe *d*. Leaving the opener the fiber is carried forward by a delivery-lattice *e* and is deposited in the intermediate receptacle C. This intermediate receptacle, the bottom of which slopes to a central point, as shown clearly in Fig. 2, constitutes a species of receptacle or bay situated midway between the feed-lattices D D, leading to the hopper-feeders. The said intermediate receptacle is provided with an automatic device which consists of a loosely-pivoted regulating-board *f* at the back of the intermediate receptacle. This board *f* is hung loosely, so that it will act as a regulating-board and move or recede if an excessive weight of cotton should be fed into the receptacle. In the same manner the board *f* automatically resumes its normal position when the weight or pressure has been relieved. The regulating-board *f* is hung on a pivot-shaft *g*. About midway on the shaft I fix a lever *h*, carrying a counterbalance-weight *h'*, which can be adjusted to maintain the regulating-board at the required normal angle. At the end of the shaft *g* is a lever *i*, the lower end of which is connected by a side rod *j* with a bell-crank lever *k*, which is pivoted on a bracket *l*, attached to the casing of the feed-lattice *a* of the auxiliary opener. The side rod *j* is supported because of its length by carrier-pulleys *j' j'*. The bell-crank lever *k* also engages with the tail of a pivoted belt-fork *m*, which shifts the belt on the fast and loose pulleys *n n'*, whereby the movements of the feed-lattice *a* are governed. Thus it happens that when by overfeeding or back pressure the regulating-board *f* is moved back the lever *i* is similarly moved, and thus, by

means of the side rod *j*, moves the bell-crank lever and belt-fork so as to shift the driving-belt from the fast pulley *n'* to the loose pulley *n*, whereby the feed-lattice *a* is stopped and the supply of cotton cut off. When the weight or pressure on the regulating-board *f* has been relieved by the stoppage of the supply, the board automatically moves forward to its normal position and by so doing moves the belt-fork so as to replace the driving-belt on the fast pulley, thereby restarting the lattice *a* and reëstablishing the supply of cotton to the apparatus. The cotton thus fed in regulated quantities into the receptacle C is removed therefrom by the two inclined lattices D D, which carry the cotton to the hopper-feeders E E. These hopper-feeders are also furnished with automatic regulating-boards *o o*, whereby the movements of the feed-lattices D D are automatically governed in accordance with the demands of the feed-hoppers in the manner and by the means already described. For example, the side lever *p*, which is dependent from the pivot-shaft *q* of the regulating-board *o*, is connected by a link *r* with the tail of the pivoted belt-fork *s*, whereby the belt is shifted on the fast and loose pulleys *t t'*, so as to regulate the movements of the lattice D in accordance with the requirements of the feed-hopper.

By the indicated arrangements it will be seen that the amount of fiber deposited in the intermediate receptacle can be regulated without interfering with the action of the feed-lattice of the hopper-feeders, which are independently controlled, as heretofore, by the automatic devices of the hopper-feeders themselves.

As another illustration of the application of my invention I have in Sheet 3 illustrated the combination of an auxiliary opener provided with a feed-lattice, breaking-rollers, opening-cylinder, cage, and delivery-lattice for feeding the cotton into an intermediate receptacle provided with automatic regulating means, as in the former instance, the cotton being taken from the receptacle by lattices communicating with the hopper-feeders, also provided with automatic regulators for governing the movements of the said hopper-feed lattices.

Fig. 4 is a side elevation, and Fig. 5 a plan view, of such a combined apparatus. As in the foregoing figures, the auxilary opener is marked A. The cage is marked B' and the intermediate receptacle C. The traveling lattices for taking the cotton from the receptacle C to the hopper-feeders are marked D D. The hopper-feeders do not appear in Fig. 5 of Sheet 3, their position and arrangement having been already clearly shown in Sheets 1 and 2. The lattice *a* of the auxiliary opener conveys the cotton to the feed and breaking rollers *b* of the opener. The cotton is then treated by the opening-cylinder *c* and passed onto the cage B', whence it is transported by the lattice *e* to the intermediate receptacle C. The intermediate receptacle is furnished with a pivoted counterbalanced regulating-board *f*, and in connection with the said board *f* I provide the parts consisting of the lever *i*, rod *j*, bell-crank lever *k*, and belt-fork *m*, as in the figures hereinbefore described Thus the movements of the regulating-board *f* in the receptacle C are transmitted so as to regulate the movements of the feed-lattice *a* and the first pair of feed-rollers of the auxiliary opener in accordance with the demands of the receptacle C, the feed being interrupted if the receptacle is too full and reëstablished when the receptacle is in a condition to receive more of the cotton. The lattices D D are independently governed by automatic regulating devices in the hopper-feeders. Thus the amount of fibrous material which is deposited in the intermediate receptacle C is regulated without interfering with the action of the feed-lattices of the hopper-feeders, which are controlled, as heretofore, by the independent automatic devices in the hopper-feeders themselves.

I claim—

1. In combination, the plurality of feed-hoppers, the lattices leading thereto, a bay or receptacle common to both hopper-feed lattices, means for feeding the material to the bay or common receptacle, the feed-board in the bay, the connections between the same and the feeder means of the bay, the feed-boards in each of the feed-hoppers, driving connections intermediate of the last-mentioned feed-boards and their corresponding lattices, the said feed-lattices by their action or inaction affecting the supply of material in the bay and through the connections the supply-feeder, substantially as described.

2. In combination, the feed-hopper, the lattice leading thereto, a bay or receptacle from which the lattice receives its supply, means for feeding the material to said receptacle, a feed or controlling board in the said bay, connections between the same and the said feeder means, a feed-board in the feed-hopper, connections between the same and the lattice, the said feed-board and connections and lattice controlling also the feed leading to the bay by means of the feed-board in said bay and its connections, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

THOMAS RODGERSON MARSDEN.

Witnesses:
JOSHUA ENTWISLE,
RICHARD IBBERSON.