

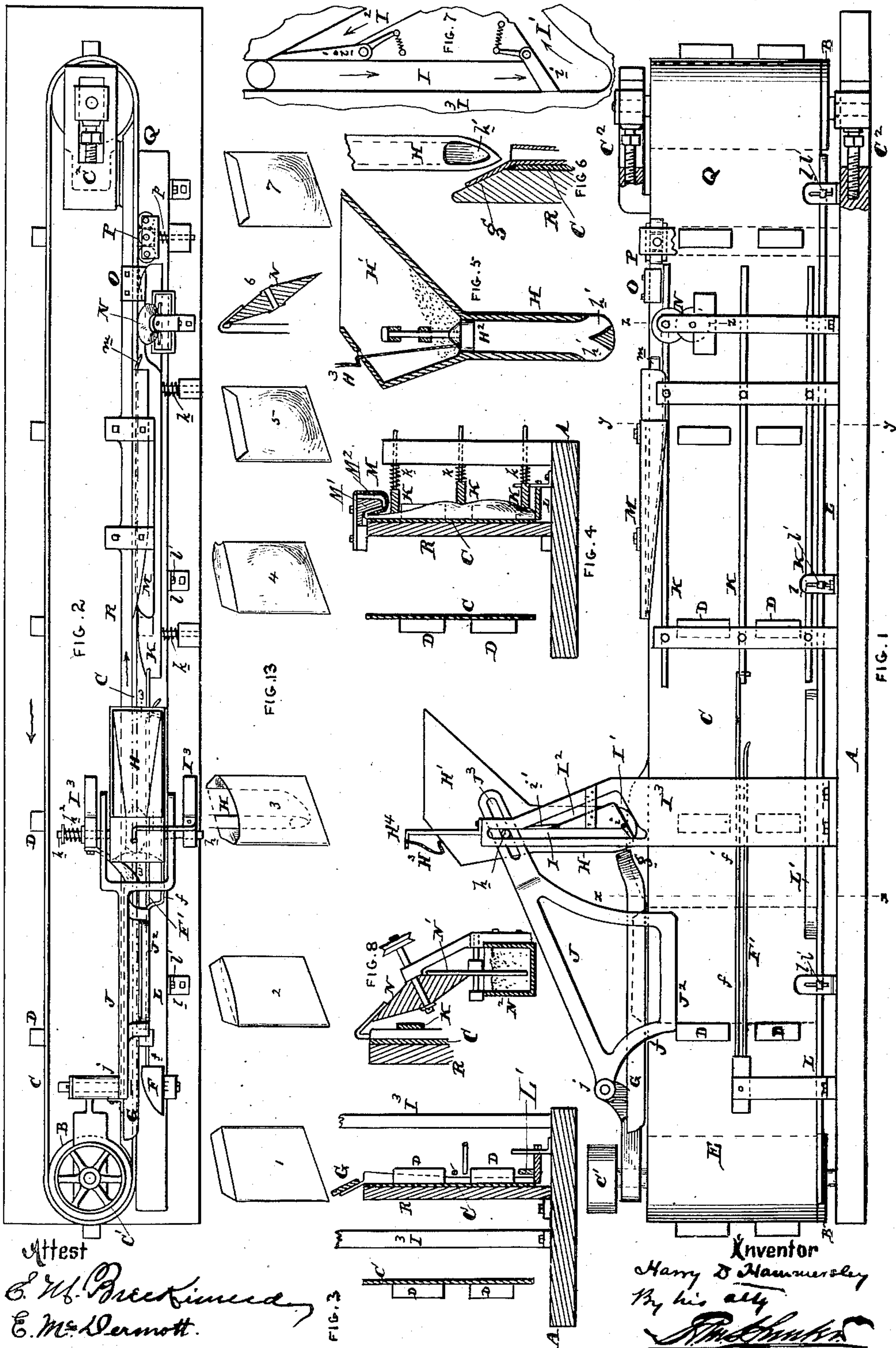
(No Model.)

2 Sheets—Sheet 1.

H. D. HAMMERSLEY.
BAG FILLING MACHINE.

No. 395,390.

Patented Jan. 1, 1889.



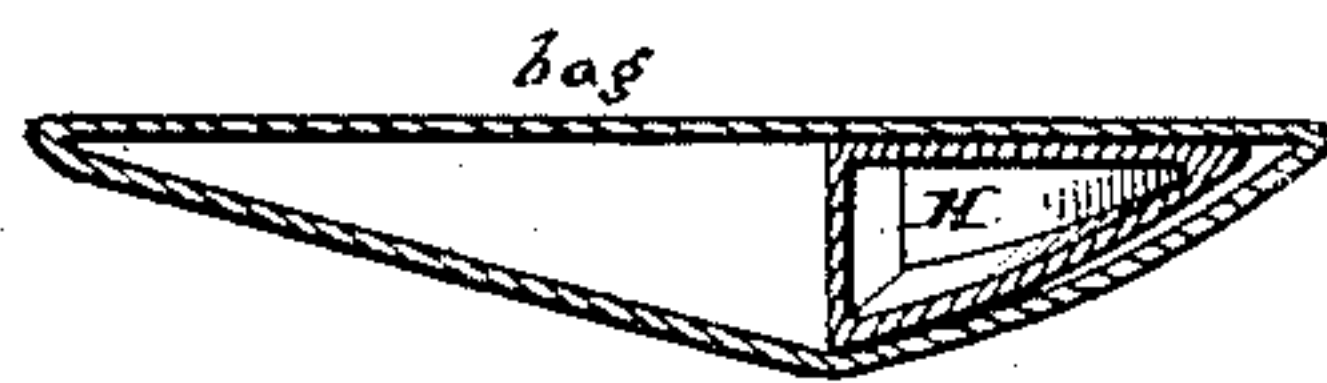
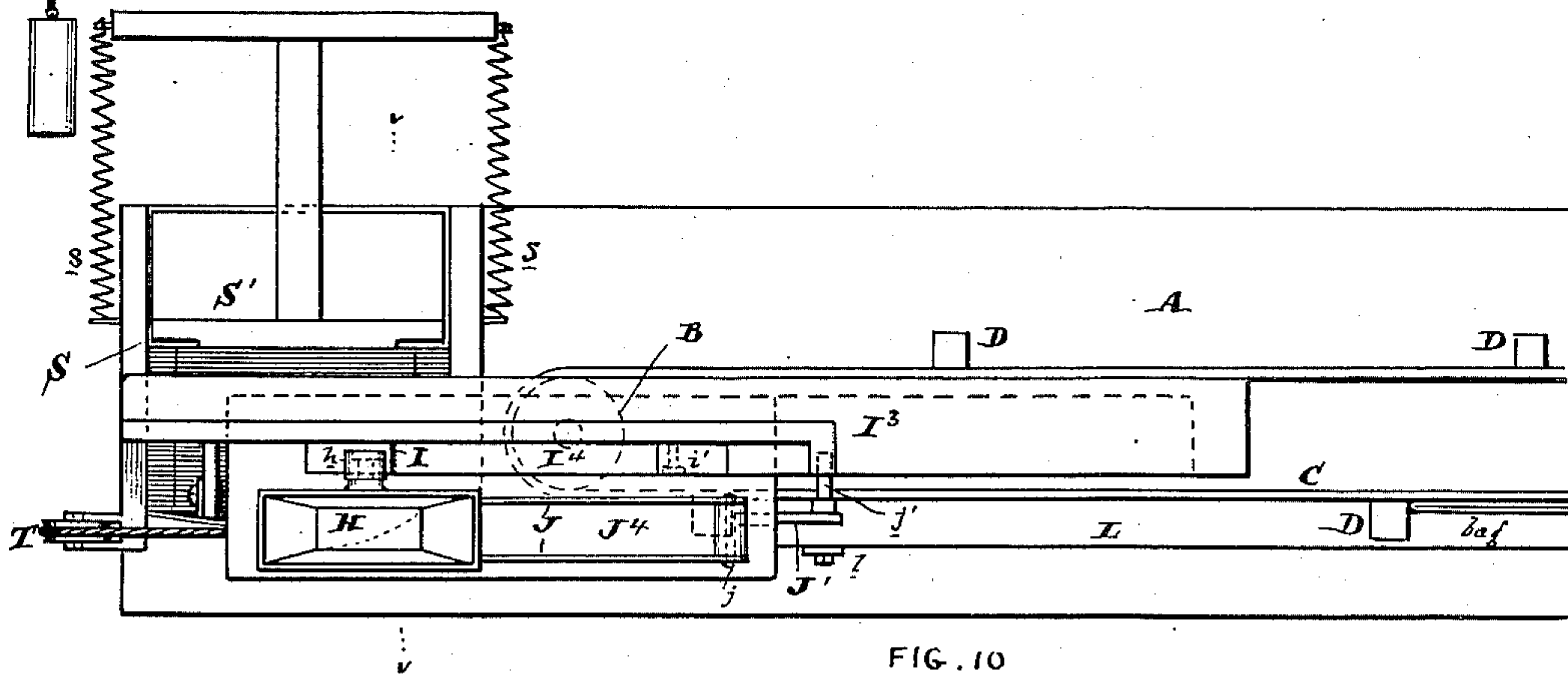
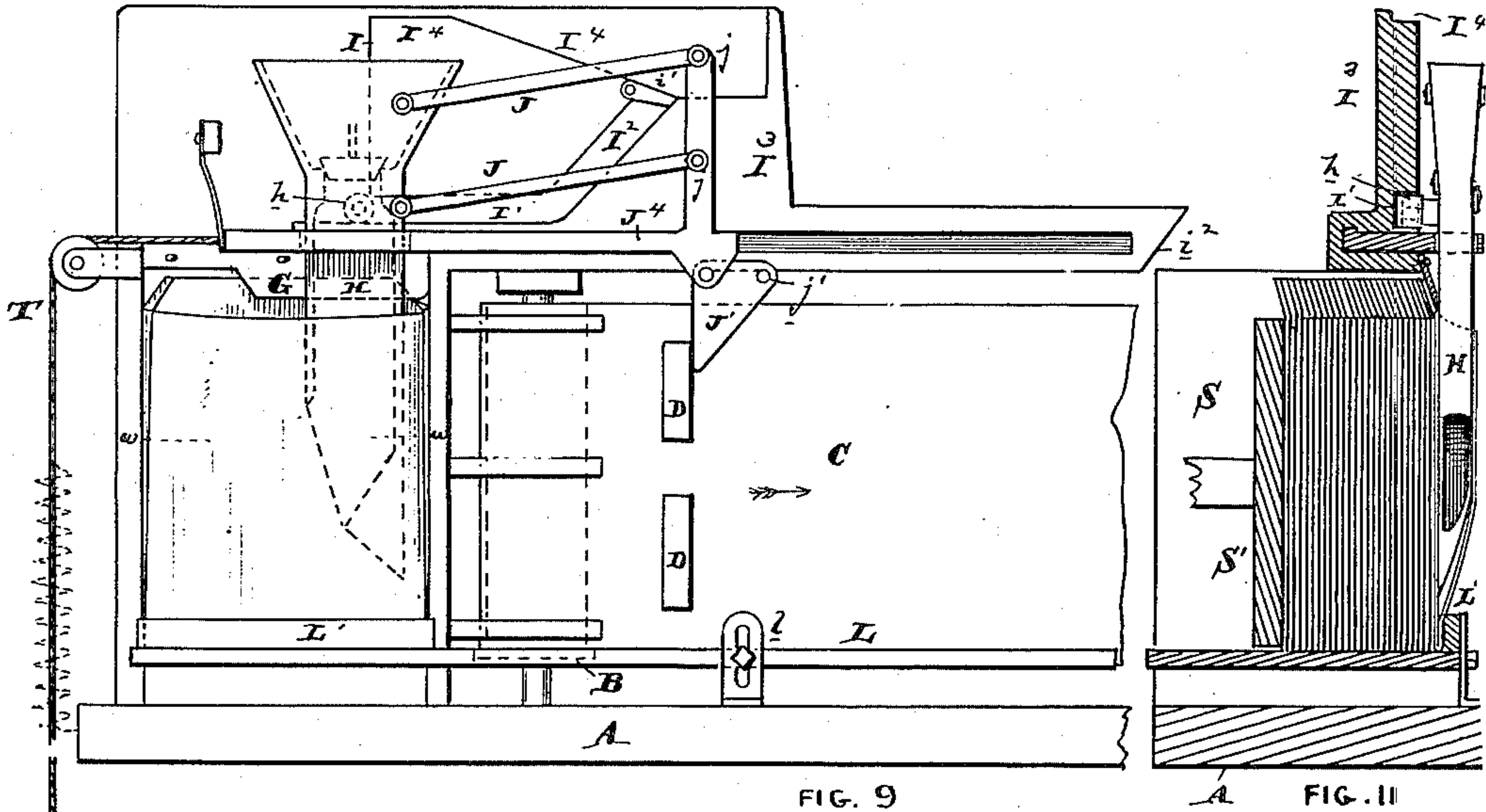
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Attest
E. W. Prentiss
E. McDermott

Inventor
Harry D. Hammersley
By *[Signature]*

UNITED STATES PATENT OFFICE.

HARRY D. HAMMERSLEY, OF BRISTOL, ASSIGNOR OF ONE-THIRD TO BURNET LANDRETH, OF BLOOMSDALE, PENNSYLVANIA.

BAG-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 395,390, dated January 1, 1889.

Application filed May 9, 1887. Serial No. 237,538. (No model.)

To all whom it may concern:

Be it known that I, HARRY D. HAMMERSLEY, of Bristol, Bucks county, and State of Pennsylvania, have invented an Improvement in Bag-Filling Machines, of which the following is a specification.

My invention has reference to bag-filling-machines; and it consists in certain improvements, all of which are fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

The object of my invention is to automatically fill paper bags with seeds or other material, substance, or articles, and seal the same after being filled or charged with its predetermined contents. These functions are performed in a continuous manner, whereby rapidity of action results and at the same time greatly reduces the labor required to fill and seal a given quantity of bags.

In the drawings, Figure 1 is a side elevation of a seed-bag-filling machine embodying my invention. Fig. 2 is a plan view of same. Fig. 3 is a cross-section of same on line *x x*. Fig. 4 is a cross-section of same on line *y y*. Fig. 5 is a sectional elevation, on line *w w*, of the filling-nozzle. Fig. 6 is a detailed view showing how the bag is slightly opened when the filling-nozzle descends. Fig. 7 is a side elevation showing the guides and switches for the filling-hopper. Fig. 8 is a cross-section on line *z z*, showing the pasting devices. Fig. 9 is an elevation on an enlarged scale showing the filling-nozzle arranged to automatically feed the bags as well as fill them. Fig. 10 is a plan view of same. Fig. 11 is a sectional elevation on line *v v* of Fig. 10. Fig. 12 is a cross-section of bag with filling-nozzle in it on line *w w* on Fig. 9, and Fig. 13 represents various views of the bags in the process of being filled and sealed.

A is the bed-plate of the machine.

B B are two band-wheels supported therein and adapted to feed the endless band C. The band is kept taut by the adjustable bearings C² for one of the wheels B and runs in front of a supporting-frame, R. The band C is provided with projections D, secured to it at intervals apart to catch and feed the bag through

the machine, and is a traveling feed for the bags.

Referring, first, to the construction shown in Figs. 1 and 2, the bag is placed upon the guide L, made adjustable vertically for different-sized bags by means of the slotted brackets *l* and bolts *l'*. This guide L is the support for the bags while they are being fed. The bag is then pushed forward by the projections D, its body portion passing back of the guide F and lying next to the band C, and its flap is pressed slightly back in entering and is held back by passing under the guide G. (See Figs. 1 and 3.) The hopper-nozzle H, being down to fill a previously-inserted bag, is lifted by the projection D striking the edge J' of lever J, which is pivoted at *j*. The hopper-nozzle is thus raised to the position shown in Fig. 1, and remains in that position so long as the projection D is under the edge J² of lever J. The hopper-nozzle H is made oblong in cross-section, and is shaped as shown in Figs. 5 and 6. It is hollow, and has lateral openings *h'* in the line of the travel of the bag for the passage of the seed into the bag. The upper part of the nozzle is furnished with a hopper, H', and the opening from the hopper into the nozzle is closed by a valve, H², which remains closed by its own weight when the nozzle is raised, and is opened by the descent of the nozzle through the agency of the cord H³, which is attached at one end to the valve or its stem and at the other end to the standard H⁴. The hopper and nozzle are provided with lateral guide-pins *h*, which move in guides I I' I² in frames I³. These guides are provided with switches *i* and *i'* to insure the pins *h* following the vertical guide I in descending, then to travel in the guide I' with the bag, and finally to rise up out of the bag and return by way of guide I² to the top of guide I again. The guide I' allows the nozzle to travel for a short period of time with the bag to insure its contents being transferred to the bag. A spring, h², (see Fig. 2,) holds the nozzle toward the band and toward the flap, Fig. 6, to insure the nozzle entering the bag. The lever J has slots J³, through which the pins *h* pass, and whereby the movements of said lever cause

the nozzle H to rise or fall. As the projection D passes from under the edge J² of lever J, the lever falls and allows the nozzle H to quickly descend, entering the bag, which is then under it in position to receive the seed. The flap of the bag is just passing from under the guide G and is resting on the guide g, Fig. 6. Prior to descending, the hopper H' has received its charge of seed to fill a single bag from any automatic measuring device or by hand, and as the nozzle falls and descends to the bottom of the bag the slack cord H³ is taken up and the valve H² is lifted, allowing the seed to be discharged into the bag. The bag then moves on with the nozzle, and the nozzle is then withdrawn by the next projection D acting upon the lever J. During these operations the bag was held against the band C by the guides f F'. At place of filling the positive guide f is bent out, as shown at f', to allow easy descent of the nozzle. The lower edge of the bag while being filled was held back against the band by guide L'. The bag now passes under guides K, which are pressed toward the band by springs k, Figs. 1, 2, and 3. The flap is then folded down by the folder M, which may be of any suitable construction—such as is used in many paper-bag machines—though the construction I prefer is that shown in Figs. 1 and 4, which consists of a former, M', and a curved metal plate, M², extending out from and partially surrounding the former M'. Between this former M' and the metal plate M² the flap of the bag passes when it is being folded. After being bent down the flap is pressed up slightly by the extension m of the curved plate M², Figs. 1 and 2, so as to pass over the paste-wheel N to apply paste to its under surface. The paste-wheel is made of a wheel, N, having a knife-edged periphery and set at an incline, which receives paste from a wheel, N' running in a paste-box, N². Any form of pasting device may be used and may be driven in any of the well-known ways found upon paper-bag machines. After receiving paste the flap is pressed down by guide O, and then runs under the pressure-rollers P, pressed against the flap by springs p. The filled and pasted or sealed bag is then discharged at Q.

The table-guide L may be adjusted vertically for different sizes of bags.

Referring to Fig. 13, the bag 1 represents the bag as fed to the machine, 2 as the flap is pressed back, 3 as the nozzle has entered, 4 as the flap is just being turned down, 5 after flap has been turned down, 6 while being pasted, and 7 as completed.

The machine may be driven by band-wheel C'. The apparatus just described has no automatic feed to supply the bags in succession to the machine.

In the construction shown in Figs. 9, 10, and 11 the filling apparatus is also made to perform the function of the automatic feed. In this construction a feed-box, S, is arranged

at one end of the band C, and the bags are placed therein and forced up against the guide L' at the bottom and guide G at the top by a follower or feed-plate, S', pressed up by springs s or otherwise. This constitutes a magazine-feed. The pressure causes the mouth of the bag to be slightly opened, as shown in Fig. 11, to receive the nozzle. The nozzle H is hinged to a sliding frame, J¹, by links J. This frame J¹ has hinged dog J', which hangs down so as to be caught by the projections D on band C. The frame J¹ slides horizontally upon a stationary guide-frame, I³, which has the lower horizontal guide, I', the oblique upward guide, I², with the switch i' at the top return-guide, I⁴, and vertical guide I. The pin or roller h on the nozzle H runs upon these guides, as in the case first described. The dog J' has a pin, j', which runs against the under edge of the frame I³, and the end of said frame trips said dog when it runs off the end i² thereof. The operation would be as follows: The nozzle having entered the bag and discharged its seed, the projection D on the band C strikes the dog J' and pulls the frame J¹ with it. This action draws the bag with the nozzle in the direction of the arrow, Fig. 9, until in position to be caught by the next projection D. Further movement of frame J¹ causes the pin h to run up the guide I² above switch i'. The bag is then filled and free to pass on to the folding and pasting devices. The pin j' now runs off the end i² and the dog J' trips, freeing the frame J¹ and allowing the spring or weight T to draw it back to its original position. In passing backward the pin h runs upon the upper rail or guide, I⁴, and after passing over the end thereof it falls down the vertical guide I, entering the next bag, and the operation of filling and feeding the bag is repeated.

The details of construction may be modified in various ways without departing from my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bag-filling machine, a support for the bag, in combination with a reciprocating filling-nozzle made hollow and with discharge-openings at or near its bottom, and suitable means, substantially as described, to reciprocate said nozzle to cause it to enter the mouth of the bag.

2. In a bag-filling machine, a support for the bag, in combination with a reciprocating filling-nozzle made hollow and with discharge-openings at or near its bottom and with a hopper at the top, a valve to control the passage of material from the hopper to the nozzle, and suitable means, substantially as described, to reciprocate said nozzle to cause it to enter the mouth of the bag.

3. In a bag-filling machine, a traveling feed for the bags, in combination with a vertically and horizontally reciprocating filling-nozzle,

and means, substantially as described, to operate said nozzle to cause it to enter the bag before discharging its contents.

4. In a bag-filling machine, a traveling feed for the bags, in combination with a vertically and horizontally reciprocating filling-nozzle, means, substantially as described, to operate said nozzle to cause it to enter the bag before discharging its contents, folding and pasting devices, substantially as set forth, to fold the flap of the bag and paste it down tight after being filled.

5. In a bag-filling machine, the combination of a magazine-feed for the bags, a vertically and horizontally reciprocating filling-nozzle adapted to enter, fill, and feed the bags in succession, means, substantially as described, to operate the nozzle, an endless feed-band for the bags to which they are delivered by the nozzle, and suitable pasting and sealing devices, substantially as set forth, for pasting down the flaps of the bags while in the custody of the endless feed-band.

6. The feeding device for a bag-filling machine, consisting of a magazine-feed for the bags and a vertically and horizontally reciprocating feeding-nozzle which enters the mouth of the bag and draws it from in front of the other bags, and suitable mechanism, substantially as described, to reciprocate said feeding-nozzle.

7. The combination of the nozzle H, having hopper H' at the top, the valve H², cord H³, connecting with said valve at one end and fixed at the other, means, substantially as set forth, for reciprocating said nozzle and hopper, and a suitable support and feed for the bags normally below the nozzle when the latter is raised.

8. The combination of a reciprocating filling-nozzle made hollow and having discharge-openings at or near its bottom, a feeding device, substantially as described, to pass the bags in succession into operative position under the nozzle, and an endless conveying device, substantially as described, provided with mechanism, substantially as set out, to automatically and simultaneously feed the bags

and reciprocate the nozzle synchronously, whereby the nozzle shall enter each bag in succession.

9. The combination of a reciprocating filling-nozzle made hollow and having discharge-openings at or near its bottom, a feeding device, substantially as described, to pass the bags in succession into operative position under the nozzle, and automatic mechanism, substantially as set out, to simultaneously feed the bags and reciprocate the nozzle synchronously, whereby the nozzle shall enter each bag in succession, and an adjustable guide for the bag to adjust it vertically with relation to the nozzle.

10. The combination of the feed-box S with its follower S' and guide G, the vertically-reciprocating nozzle H, horizontally-reciprocating frame J¹, carrying said nozzle, guides I, I', I², and I⁴, and a pin or roller on the nozzle to run upon said guide, substantially as and for the purpose specified.

11. The combination of the feed-box S with its follower S' and guide G, the vertically-reciprocating nozzle H, horizontally-reciprocating frame J¹, carrying said nozzle, a dog, J', on said frame, guides I, I', I², and I⁴, a pin or roller on the nozzle to run upon said guides, an endless band, C, having projections D, adapted to catch the dog J' to reciprocate the frame in one direction, and a weight or its equivalent to reciprocate the frame in the other direction, substantially as and for the purpose specified.

12. The combination of the feed-box S with its follower S' and guide G, the vertically-reciprocating nozzle H, horizontally-reciprocating frame J¹, carrying said nozzle, guides I, I', I², and I⁴, a pin or roller on the nozzle to run upon said guides, and vertically-adjustable guide L', substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

HARRY D. HAMMERSLEY.

Witnesses:

R. M. HUNTER,

RICHD. S. CHILD, Jr.