(No Model.) 2 Sheets—Sheet 1.

H. D. KLOTS.

GATHERING OR DOUBLING MACHINE.

No. 506,434. Patented Oct. 10, 1893.

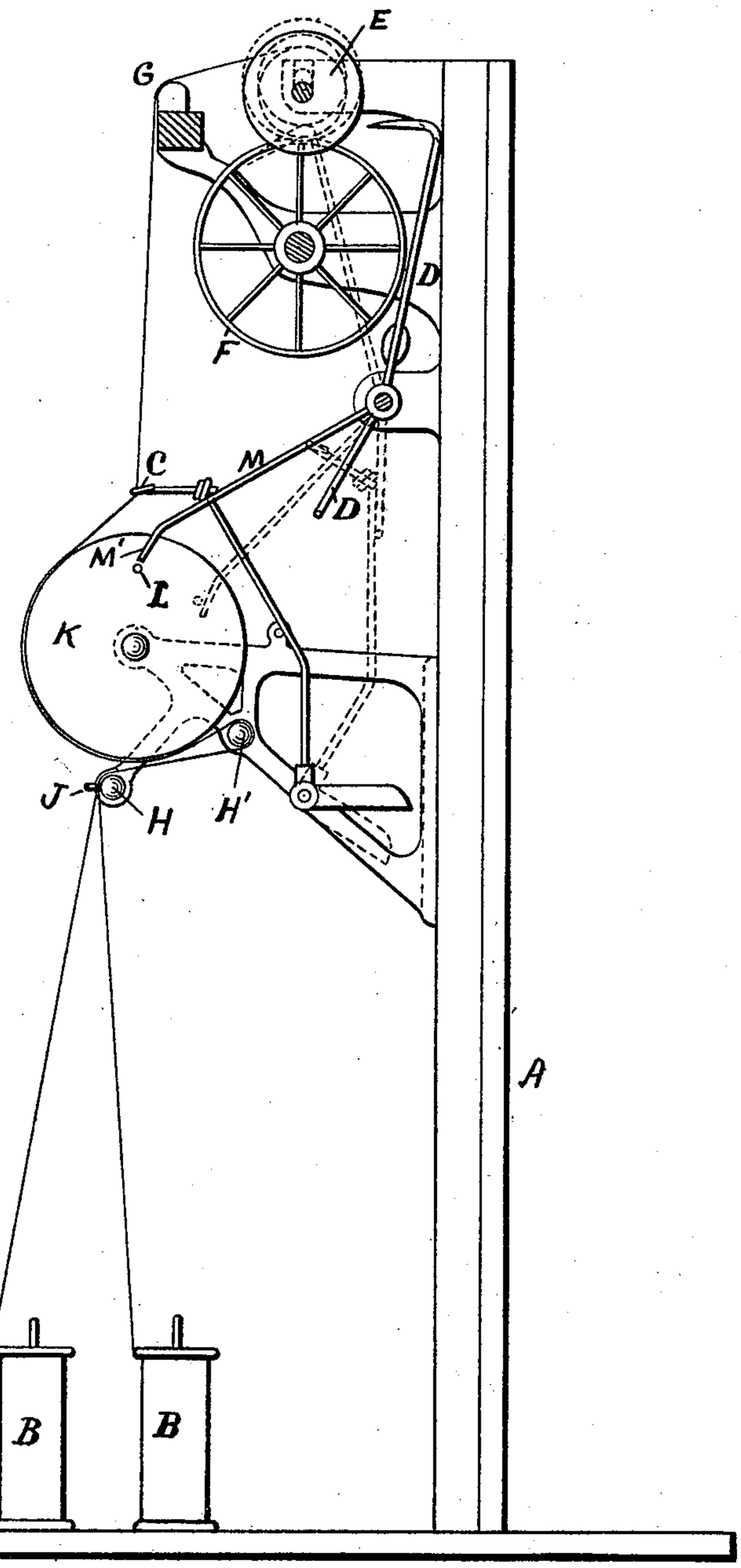

FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

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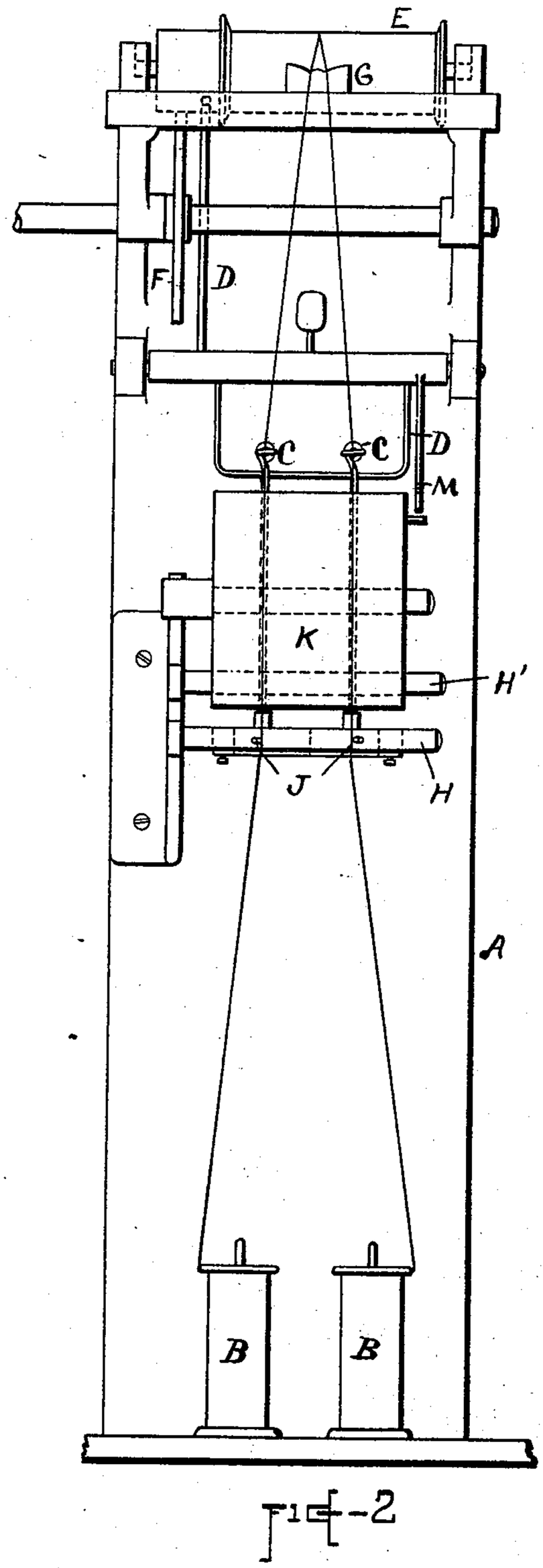

FIG-2

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UNITED STATES PATENT OFFICE.

HENRY D. KLOTS, OF NEW YORK, N. Y.

GATHERING OR DOUBLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,434, dated October 10, 1893.

Application filed April 18, 1892. Serial No. 429,574. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. KLOTS, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Doubling or Gathering Machines, of which the following is a specification.

This invention relates particularly to doubling or gathering machines in the operation of which the threads to be gathered run from their supply bobbins and equalizing tension device, through detectors, to operate the stop-motion in case a thread breaks, and through a gathering guide to the receiving bobbin.

The principal objects of my improvement are to provide an efficient tension device which will render unnecessary the use of fliers on the supply bobbins and to accelerate the action of the stop-motion when a thread breaks. My invention whereby I accomplish these ends and also obtain other advantages hereinafter set forth, comprises certain novel features of construction and combinations of parts, which, in order that my invention may be fully ascertained, I shall first describe in detail and then particularly point out in the claims.

Reference is to be had to the accompanying drawings forming part of this specification, in which—

Figure 1 represents a side, partly sectional, elevation of a doubling machine embodying my invention, and Fig. 2 represents a front elevation of the same.

Like letters of reference designate corresponding parts in both the figures.

A designates the frame of the doubling machine herein shown, B the thread-supply bobbins, C the detectors of the stop-motion through which the respective threads run, D the stop-motion lever operated by the detectors, which lever in the form of stop-motion shown acts to stop the rotation of the drawing bobbin E by separating it from the driver F, in a well-known manner, and G designates the guide by which the threads after leaving the detectors C are gathered before being wound on the drawing bobbin E. All these instrumentalities are in common use and as such form no part of the invention proper. I take the threads endwise off the supply bobbins B, and, to dispense with the necessity of the revolving fliers commonly used on such endwise non-rotating delivery bobbins, and to put an equal tension on the threads such as will also hold the detectors C out of action, I lead the threads over a cylindrical guide H, having thread-retaining pins J aligned approximately with the axes of the supply bobbins B, thence over another cylindrical guide H′, to and around, preferably, the greater portion of the periphery of a cylindrical, freely revolving roll K, to the detectors C, the adjustment and arrangement being such that the roll K will be compelled to revolve with the threads running around it, and will thus place an equal tension on the threads, and a tension such that the threads passing through the detector eyes will hold the detectors normally out of engagement with the stop-motion lever D.

To better insure the proper tension, and the rotation of the roll K uniformly with the motion of the threads as they are drawn by the driven bobbin E, I cover the roll K, and also one or both the stationary cylindrical guides H H′, with plush or a similar gently adhesive material.

To accelerate the action of the stop-motion when a thread breaks and a detector C falls to operate the stop-motion lever D, I, in addition thereto, provide the roll K with a pin or projection L, and the stop-motion lever D with an auxiliary operating arm M, having a bent-end M′, normally just outside the path of the revolving pin or projection L, but adapted, when the stop-motion lever D is thrown by the falling of a detector C, to be thrown therewith into the path of said pin or projection L. The end M′ of the auxiliary arm M then is struck by the pin or projection L and instantly stops the further rotation of the roll K, and with it the drawing of the threads, and at the same time the inertia of the roll K acts through the pin or projection L, and the end M′, as a cam, to exert an additional force upon the stop-motion lever D and thus accelerate and render more positive the action of the stop-motion.

I claim as my invention—

1. The combination, with the drawing bobbin, its driver, the detector stop-motion to stop the revolution of the drawing bobbin by its driver, the supply bobbins, the stationary

guides to lead the threads axially and loosely off said supply bobbins, and the loose thread drag-roll between said guides and the stop-motion detectors, of a stop projecting from said drag-roll, and an arm operated by said detectors to engage said stop, substantially as described.

2. The combination, with the non-rotating supply bobbins, the guides to lead the threads axially and loosely off said supply bobbins, the loose drag roll around which the threads pass, the drawing bobbin and its driver, of a detector stop-motion and means whereby said stop-motion simultaneously stops said loose drag roll and the driven drawing bobbin, substantially as described.

3. The combination, with the supply bobbins, the loose drag roll carrying a stop, the drawing bobbin, its driver and its stop-motion lever, and the lever-operating detector, of an arm carried by said stop-motion lever to engage the stop on the drag roll, substantially as described.

4. The combination, with the supply bobbins, the loose drag roll carrying a stop, the drawing bobbin, its driver, and its stop-motion lever, and the lever-operating detector, of a lever-operating arm to engage and be operated by the stop on the loose drag roll, substantially as described.

HENRY D. KLOTS.

Witnesses:
HENRY J. JOHNSON,
THOS. M. WYATT.