(No Model.)

S. D. TUCKER.

SHEET COUNTING MECHANISM FOR PRINTING MACHINES.

No. 408,391. Patented Aug. 6, 1889.

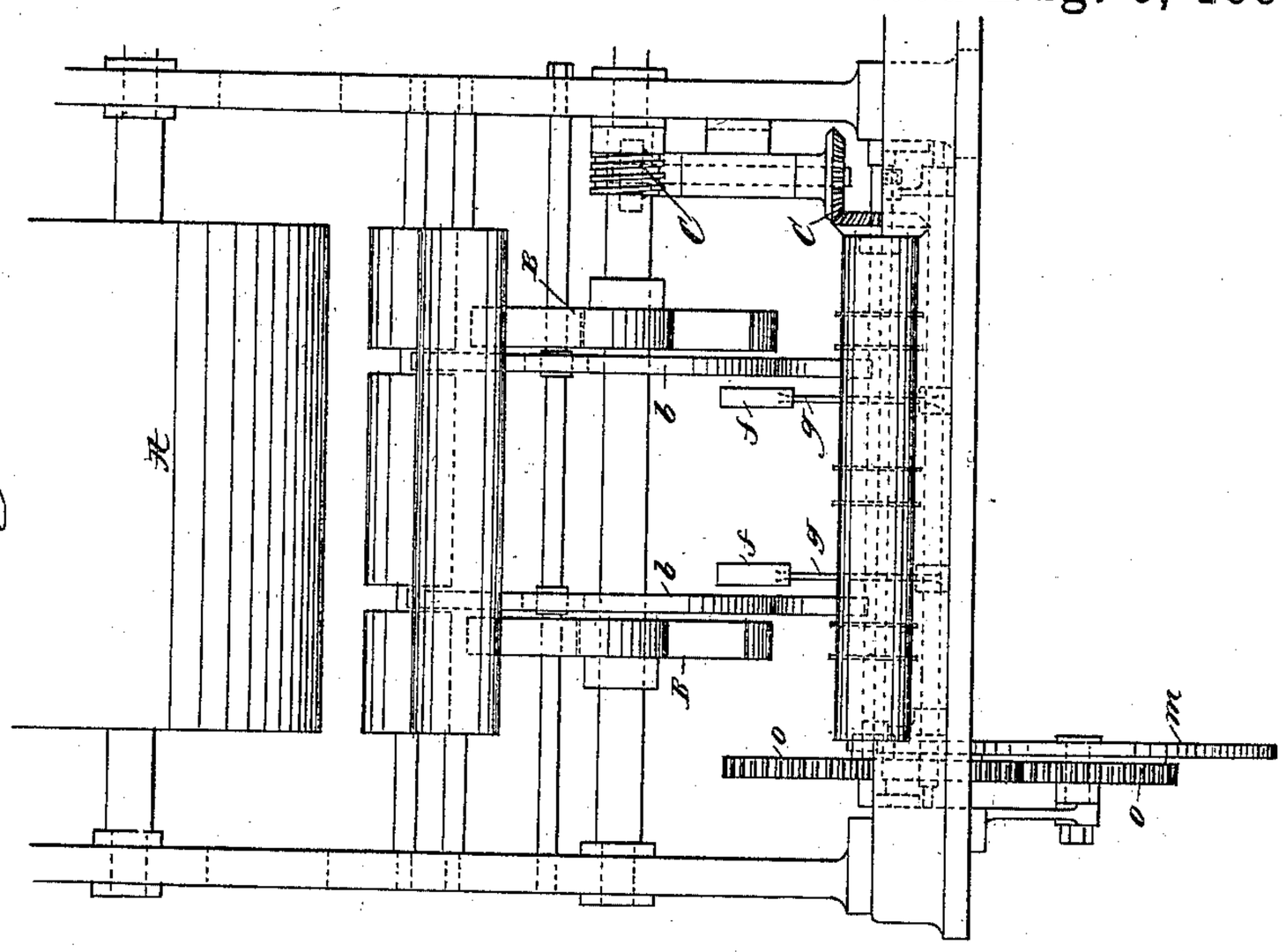

Fig. 2.

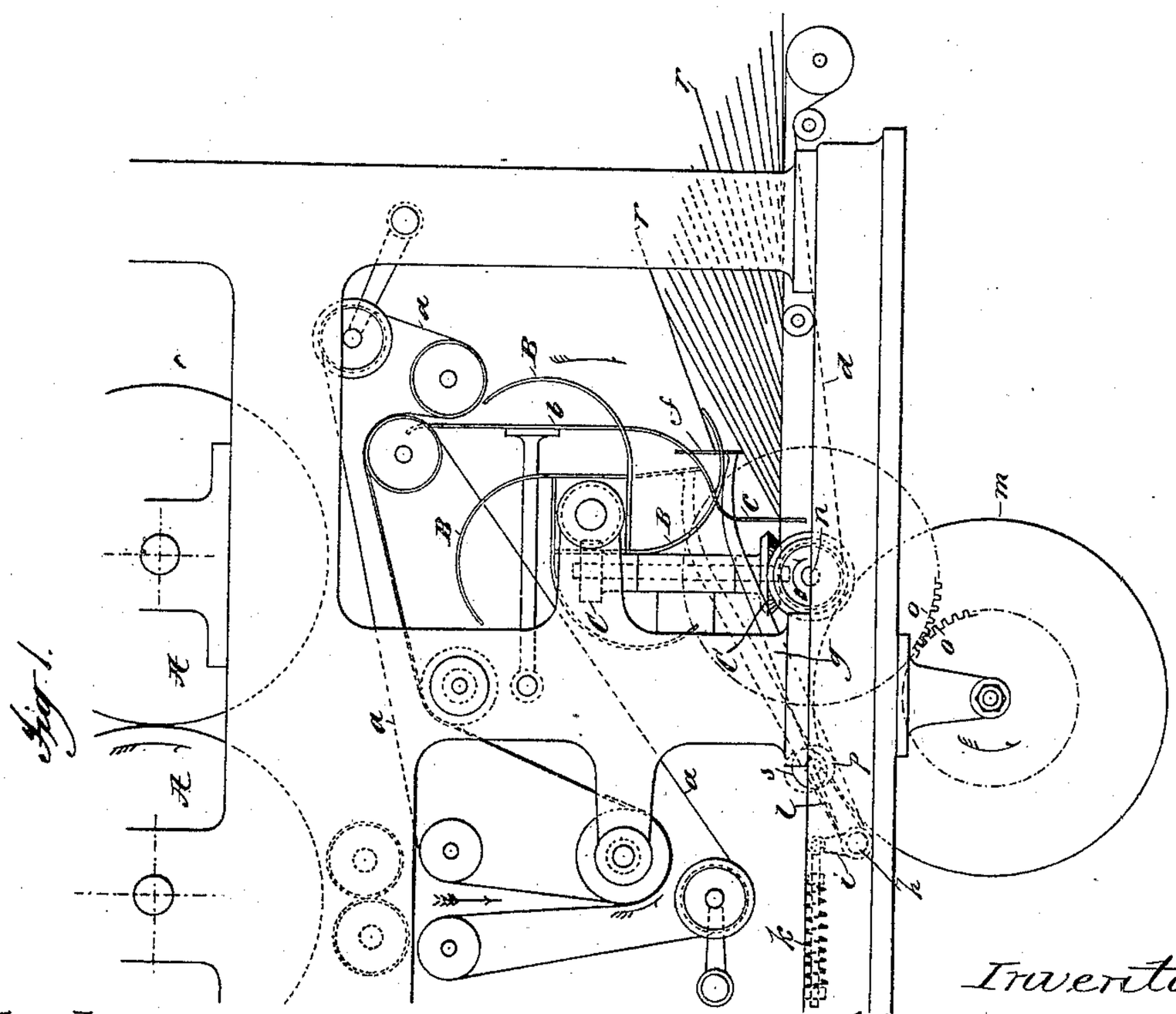

Fig. 1.

Attest

C. A. Bott

J. M. Borah

Inventor:

Stephen D. Tucker

by Philipp Phillips & Hoore

Attys

UNITED STATES PATENT OFFICE.

STEPHEN D. TUCKER, OF NEW YORK, N. Y.

SHEET-COUNTING MECHANISM FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 408,391, dated August 6, 1889.

Application filed June 4, 1888. Serial No. 275,937. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN D. TUCKER, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Sheet-Counting Mechanism for Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a means for marking or indicating the regular divisions in the pile of newspapers or other product delivered from a printing-machine, so that the product can be divided into lots containing any predetermined number without the necessity of counting.

The mechanism constituting the present invention can be employed with different forms of sheet-piling mechanism in which the sheets are deposited upon a slowly-moving apron or tapes to be conveyed from the machine, but is more especially adapted for use in connection with those mechanisms in which the piling is effected by means of a revolving fly of the character shown and described in United States Letters Patent No. 269,021. It is therefore in the present case illustrated as applied to such a piling mechanism.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a delivery mechanism having a piling mechanism of the character shown in said Letters Patent, and showing applied thereto a counting mechanism embodying the present invention. Fig. 2 is an end elevation of the same looking from the right of Fig. 1.

Referring to said figures, it is to be understood that A represents the final-folding cylinders of a delivery mechanism of any of the ordinary forms, and *a* tapes which receive the sheets from those cylinders to convey them to the piling mechanism, and B a rotary fly of substantially the construction and operation of the fly shown and described in the Letters Patent before referred to. The operation of this form of fly is now well understood in the art, and requires, therefore, but a very brief description. The sheets as they pass from the control of the tapes *a* are projected downward in front of the guides *b*, and pass into the curved arms of the fly B, by which they are lowered and finally brought against stops *c*, by which they are arrested and deposited upon slowly-moving tapes or an apron *d*, to be slowly conveyed out of the machine. The tapes *d* are driven in any suitable manner—as, for example, by means of gearing C, connecting the shaft of the fly, which is suitably driven from any other part of the machine—with the shaft *n* of one of the rolls around which the tapes pass. As the successive sheets are piled one upon another upon the tapes, the tapes will be moved forward steadily, so that the leading end of each sheet deposited, or what, after the sheet is deposited, becomes its rear end, will be moved a short distance away from the stops *c* before the next sheet arrives at said stops, and thus the sheets, instead of being piled directly one upon another, will be shingled or overlapped, the amount of overlapping being uniform. From this it will be seen that in order to mark regular divisions in the pile of sheets deposited upon the tapes it is only necessary to cause one or more sheets at regular intervals in the pile to project beyond the others; and it will also be seen that this result can be readily produced by arresting one or more sheets at regular intervals at a point in advance of the stops *c*.

The present invention consists in a mechanism by which this result is accomplished. For this purpose there are provided one or more supplemental stops *f*, which are carried upon the ends of vibrating arms *g*, which are pivoted upon a rock-shaft *h*, and are so arranged that when lowered into the position shown by full lines in Fig. 1 they will be in position to arrest the sheets some distance in advance of the stops *c*, and that when raised to the position shown by dotted lines they will be above the guides *b* and out of the path of the sheets. The shaft *h* is provided with an arm *i*, which is acted upon by a spring *k*, the tendency of which is to rock the shaft *h* and carry the stops *f* to their downward position. The shaft *h* is, however, provided with another arm *l*, having a bowl *s*, which rides upon the periphery of a disk *m*, which is constantly rotated from the shaft *n* or any other source of motion by means of engaging gears *o*.

The disk m is of such size that so long as the bowl s rests upon its periphery the shaft h will be rocked to such a position as to hold the stops f in their raised position and out of the path of the sheets. The disk is, however, provided around its periphery with one or more recesses p, into which, as the disk is revolved, the bowl s will drop temporarily at regular intervals, and thus allow the shaft h to rock and lower the stops f into the path of the sheets, as shown in Fig. 1, and thus arrest one or more sheets in advance of the others, so as to cause them to overlap and project, as indicated in Fig. 1, and thus mark the regular divisions in the pile. The number of sheets which will be thus arrested will depend upon the length of time the stops are depressed, and this will be determined by the extent of the recess p. As soon, however, as one or more sheets have been thus arrested, the bowl s will pass out of the recess in the disk m and rock the stops f back to their raised position and allow the sheets to pass forward against the stops c. The disk m is so proportioned and timed that the stops f are thus lowered so as to arrest one or more sheets at such regular intervals as will divide the pile of sheets into lots containing the desired predetermined number, as indicated by the position of the sheets r in Fig 1.

The disk m, as will be observed, is timed to revolve comparatively slowly, and in the case shown there is only one notch in the disk, so that the stops f are lowered only once during each revolution of the disk. If it is desired to make the subdivisions of the pile of sheets smaller, the disk may be provided with more than one notch, so that the stops will be lowered two or more times at each revolution of the disk. As the disk revolves slowly, the stops f will in practice usually remain lowered a sufficient time to arrest more than one sheet, even though the notch p is quite short; but the number of sheets which will be arrested can be determined readily by increasing or diminishing the length of the notch.

What I claim is—

The combination, with a rotary fly, the stops c, to arrest the sheets as they are delivered by the fly, and moving tapes or apron d, to carry the sheets from the fly, of the supplemental stops f, mounted to swing to the front of the stops c to arrest one or more sheets, and the notched disk m, for periodically operating the supplemental stops, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

STEPHEN D. TUCKER.

Witnesses:
J. A. HOVEY,
FRED. W. H. CRANE.