(No Model.) 2 Sheets—Sheet 1.

E. DUMMER.

MACHINE FOR FEEDING AND REGISTERING SHEETS OF PAPER.

No. 551,747. Patented Dec. 17, 1895.

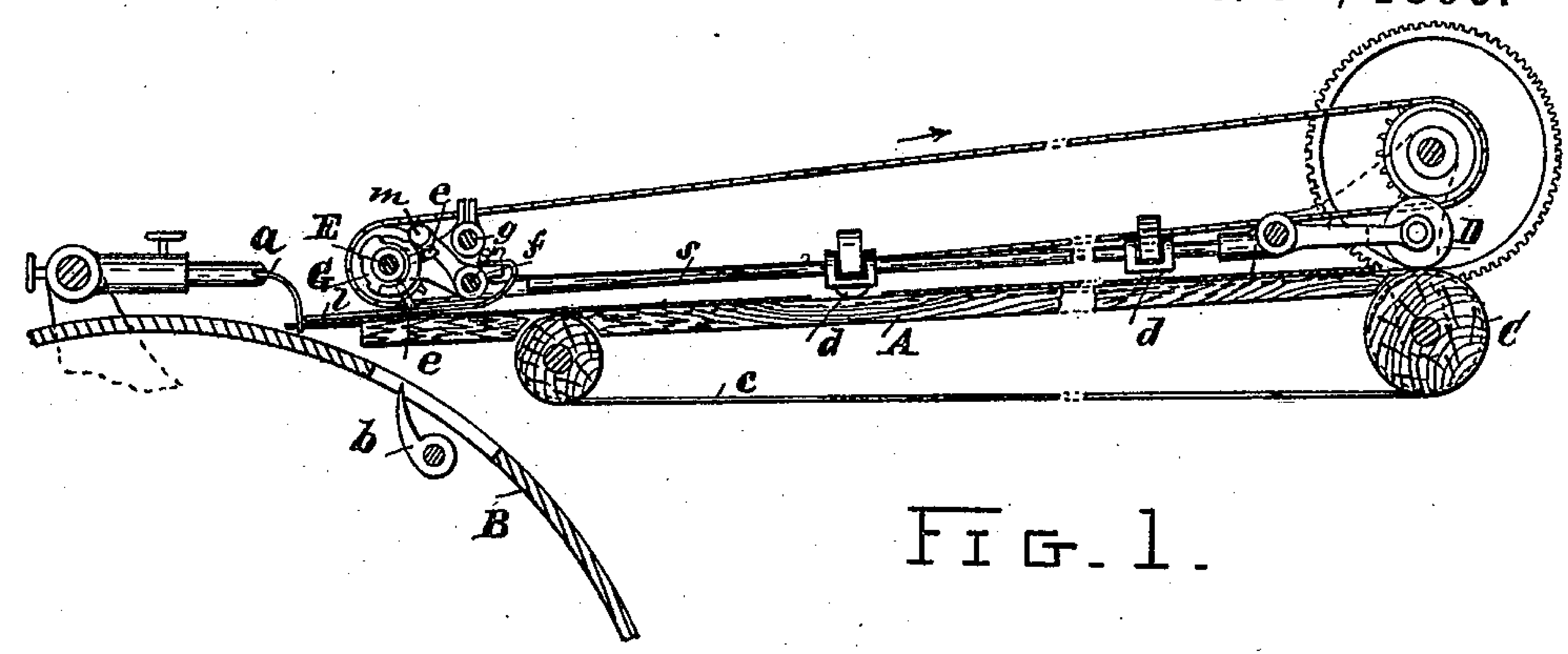

FIG. 1.

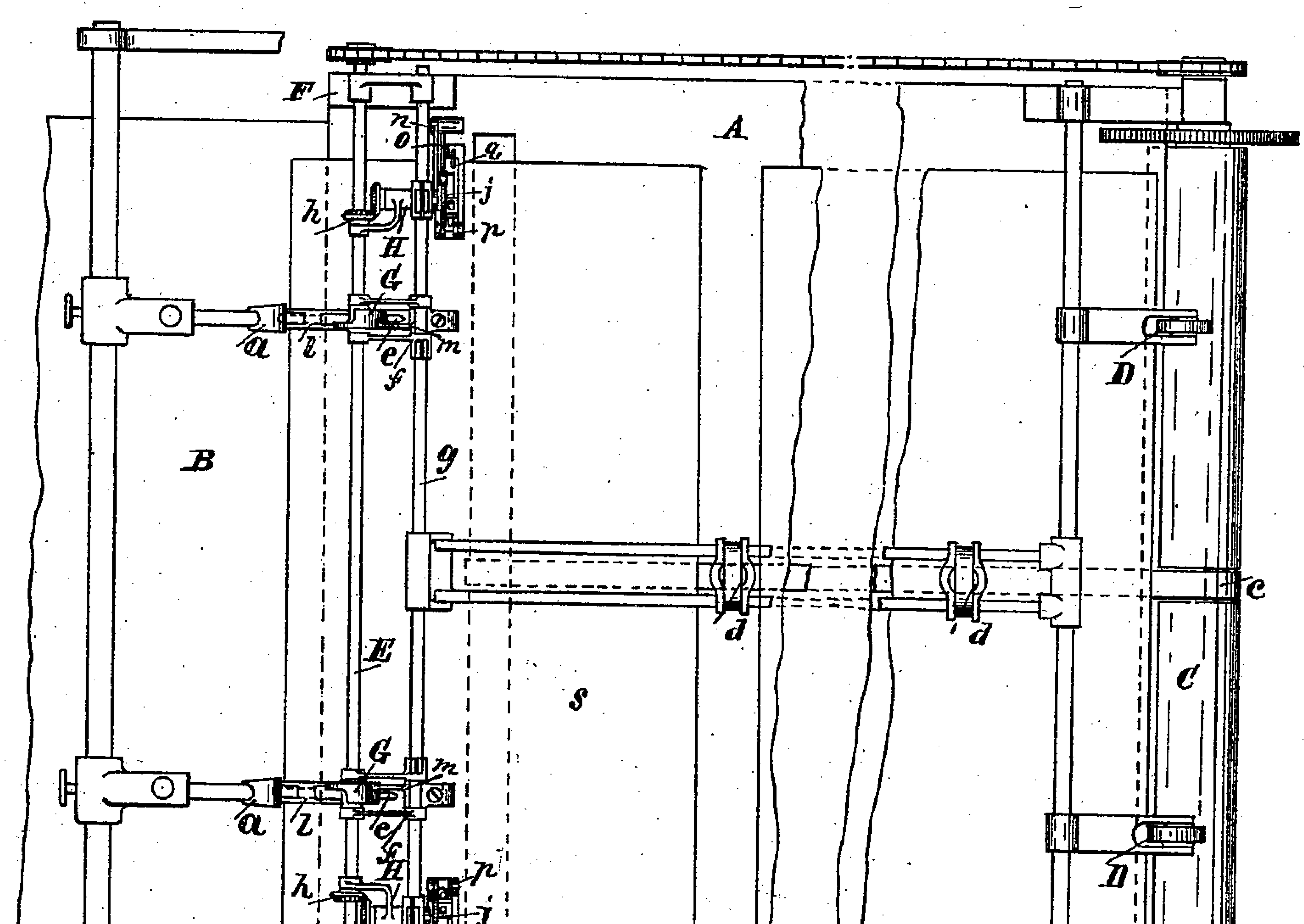

FIG. 2.

WITNESSES:
Fred W. McCurdy
A. W. Lauder

INVENTOR:
Edward Dummer.

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

(No Model.) 2 Sheets—Sheet 2.

E. DUMMER.

MACHINE FOR FEEDING AND REGISTERING SHEETS OF PAPER.

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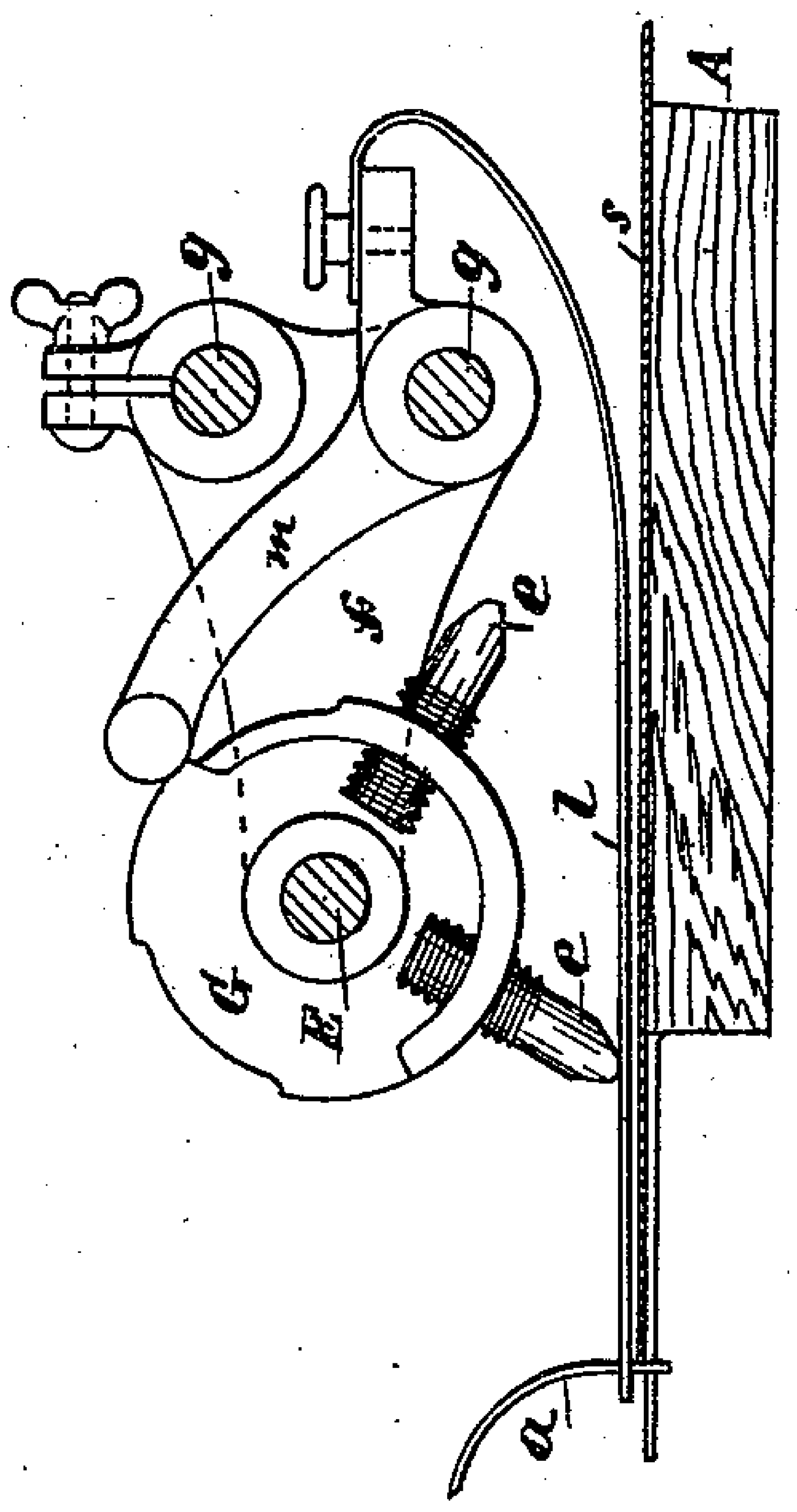

FIG. 4.

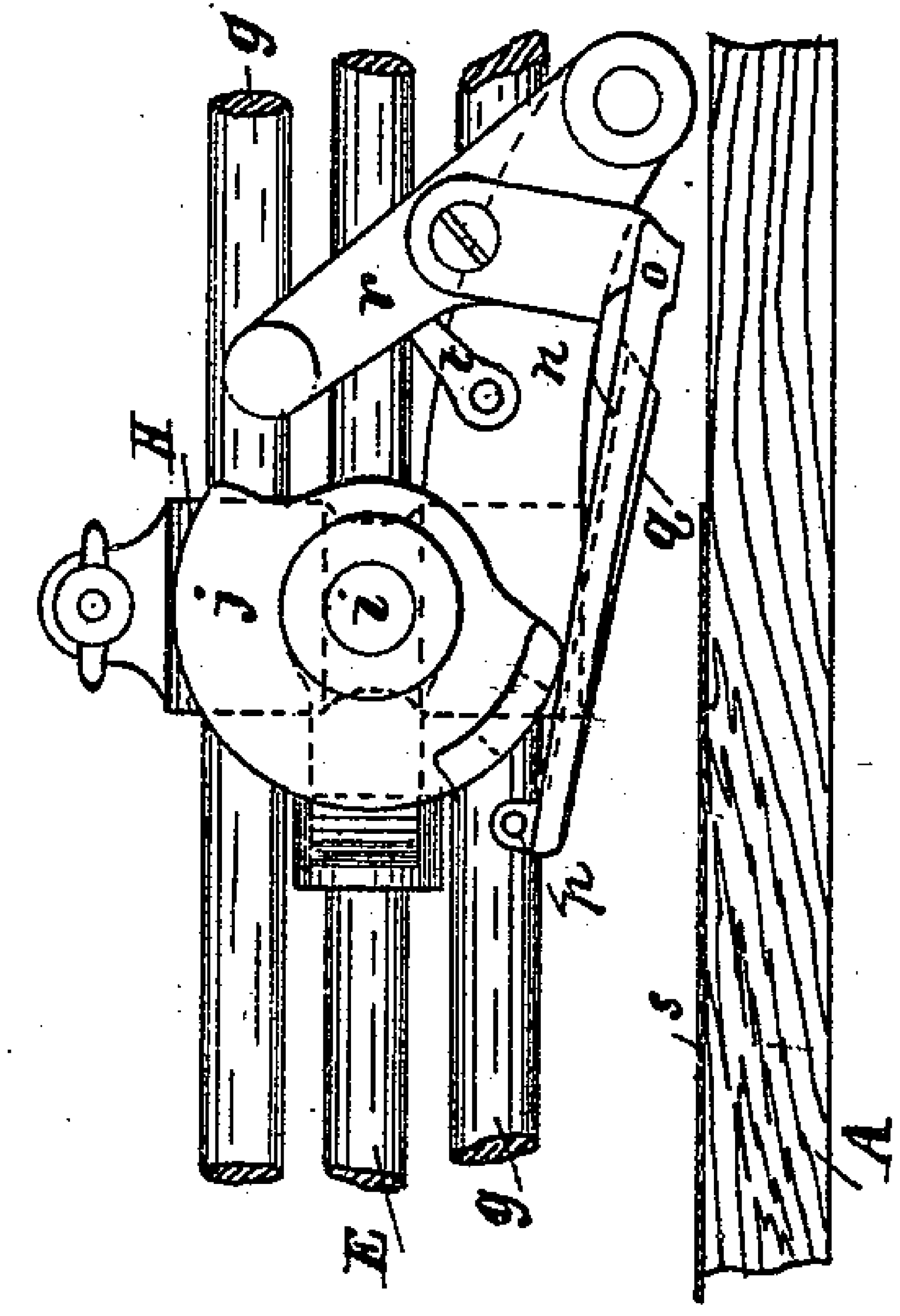

FIG. 6.

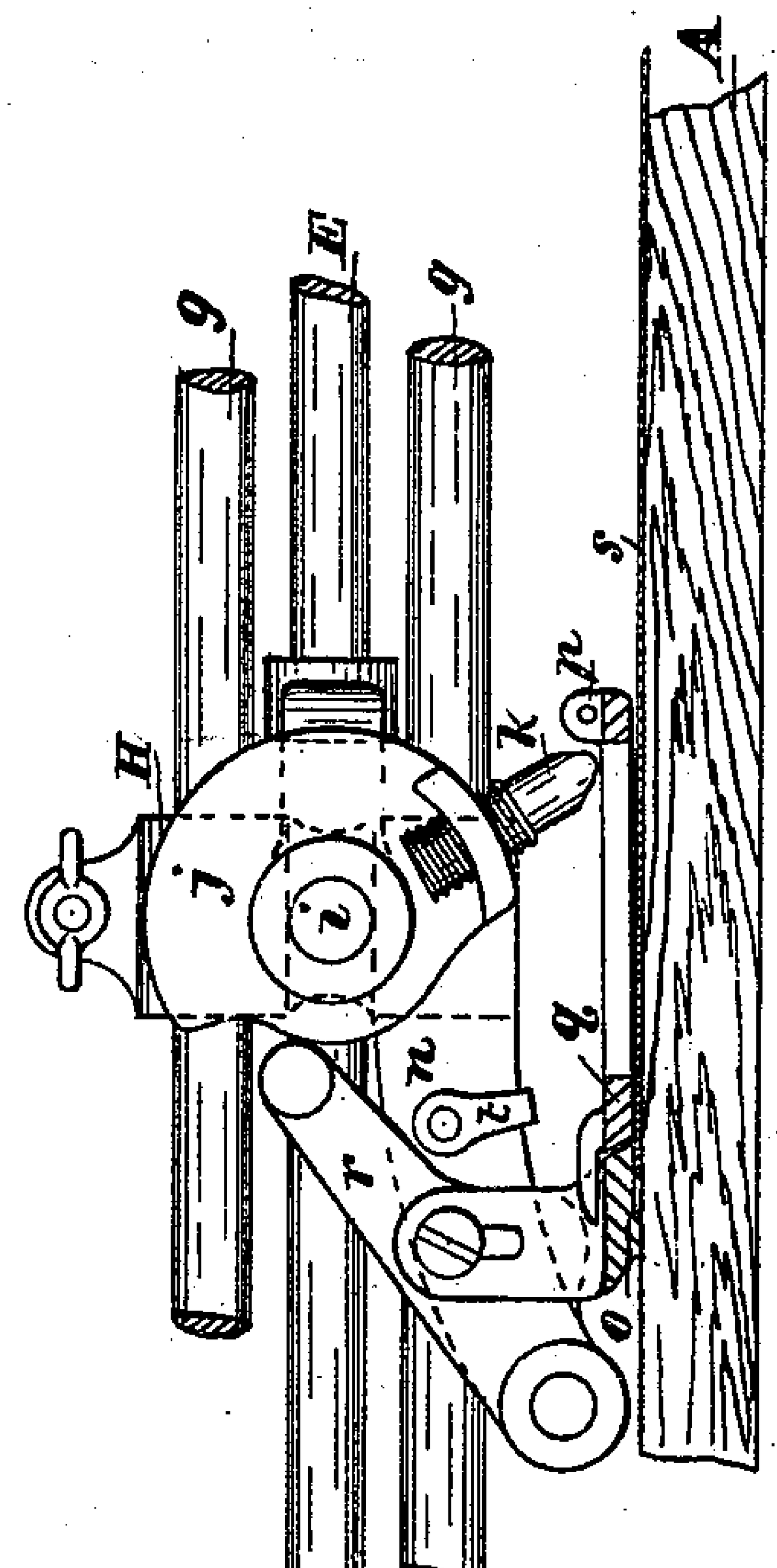

FIG. 3.

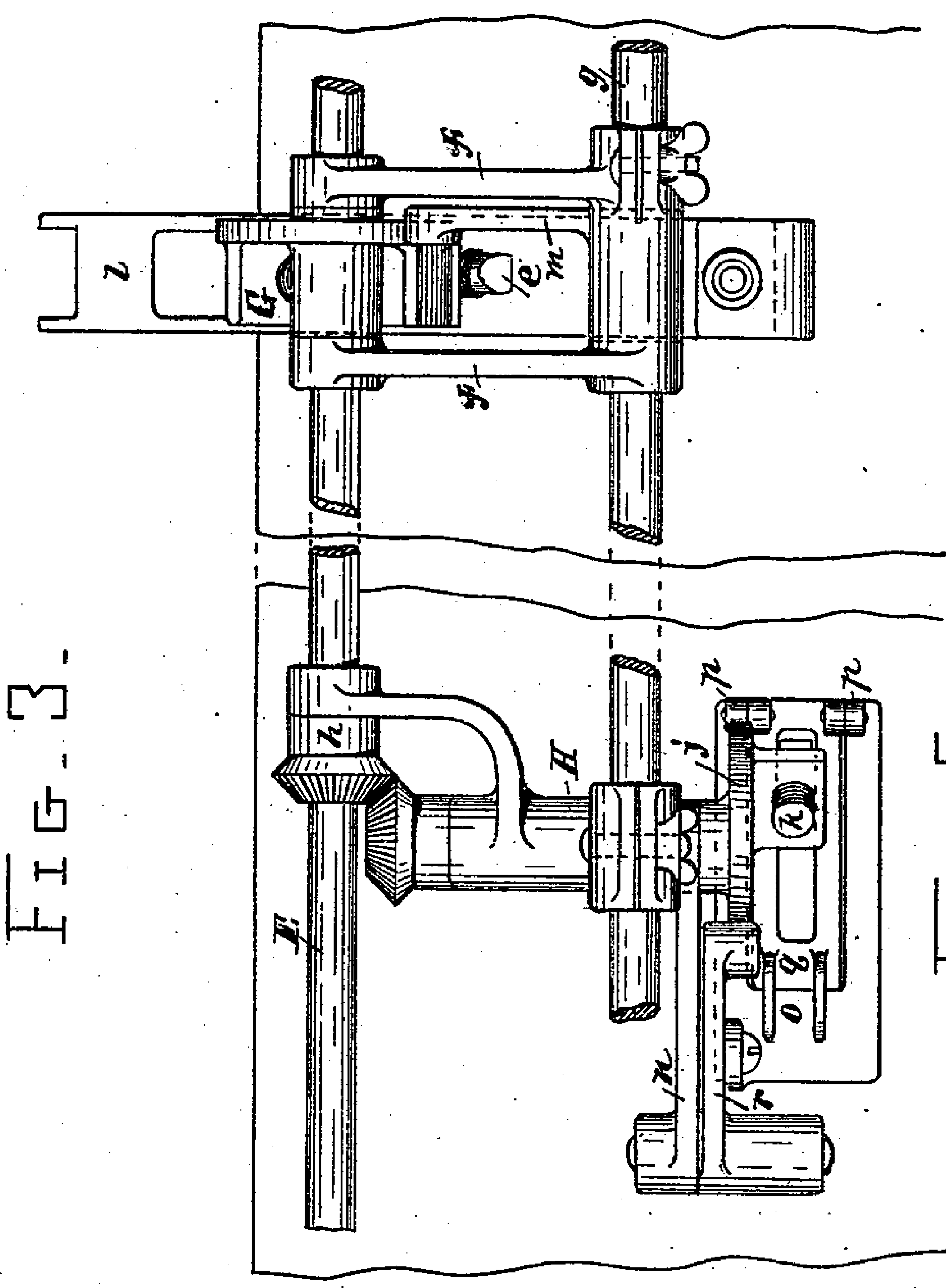

FIG. 5.

WITNESSES:

Fred W. McCarde

W. H. Lauder

INVENTOR:

Edward Dummer

ANDREW B. GRAHAM. PHOTO-LITHO. WASHINGTON, D.C.

UNITED STATES PATENT OFFICE.

EDWARD DUMMER, OF AUBURNDALE, MASSACHUSETTS, ASSIGNOR TO THE DUMMER PAPER FEEDER COMPANY, OF PORTLAND, MAINE.

MACHINE FOR FEEDING AND REGISTERING SHEETS OF PAPER.

SPECIFICATION forming part of Letters Patent No. 551,747, dated December 17, 1895.

Application filed July 9, 1894. Serial No. 516,988. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DUMMER, a citizen of the United States, residing at Auburndale, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Sheet-Registering Mechanism, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to place a sheet of paper—after the sheet has been delivered onto a suitable support therefor—so that the edge at the front and the edge at a side of the sheet will be at gages, as required, for instance, in a printing-machine, the invention consisting in instruments having a friction-surface (which I herein term "wipers") in combination with said support and gages, and with presser-feet, as hereinafter set forth, and specifically pointed out in the claims.

In the drawings, two sheets, Figure 1 is a vertical section, and Fig. 2 a plan, of so much of sheet-registering mechanism and a printing-machine as is sufficient to illustrate my invention. Figs. 3, 4, 5, and 6 show details drawn on a larger scale.

The feed-board A, impression-cylinder B, gages *a* and grippers *b* may be those of an ordinary printing-machine. A sheet is seized by a lower roller C and upper rollers D and carried by them and a belt *c* and rollers or balls *d* onto and along the feed-board A until the front edge of the sheet is approximately near the gages *a*. Supported by suitable bearings is a transverse shaft E driven by a sprocket-wheel and a chain, as shown. These bearings are on stands F, secured to the printing-machine. On the shaft E are disks or carriers G, in which are adjustably secured projections or wipers *e*, preferably flexible and having a friction-surface, their adjustment with reference in the carriers being by screwing the same in the carriers, as illustrated. These carriers revolve with the shaft E, but are adjustable on the shaft lengthwise by means of arms *f*, which may be slid and secured by means of the thumb-screws shown in any required position on fixed transverse rods *g*, held in position by the stands F. On the shaft E are bevel-gears *h*, which revolve with the shaft, but may be slid lengthwise thereof by means of arms H, which may be slid on the rods *g* and secured by means of the thumb-screws shown in any desired position. Each of the arms H has bearings for a shaft *i* at right angles to the shaft E. On each shaft *i* is a bevel-gear to engage with a corresponding gear *h*, and a disk or carrier *j* having a wiper *k* like a wiper *e*. Pivoted on a rod *g* is a presser-foot *l* to move lengthwise on the rods *g* with arms *f* and adjustable by means of the thumb-screw shown to and from the corresponding gage *a*. Each presser-foot *l* may bear on the support for the sheet or on the sheet between said support and presser-foot, near the gage. Provision is made for a wiper *e* to come in contact with a sheet when between a presser-foot *l* and the sheet-support.

On each carrier G is a cam which, by means of an arm *m*, secured to the corresponding presser-foot, raises and lowers the presser-foot as required. Each arm H has a projection *n*, to which is pivoted a side gage *o*, this gage having projection *p*, to which is pivoted a presser-foot *q*. Provision is made whereby a wiper *k* may come into contact with a sheet when between the corresponding presser-foot *q* and the sheet-support. Each carrier *j* has a cam fixed thereto to raise and lower by means of an arm *r* both the corresponding gage *o* and presser-foot, as required.

A sheet *s* having been carried so that its front edge is approximately near to the front gages *a*, and a side edge near to a side gage *o*, one of the wipers *e* on each of the carriers G will come into contact with the sheet and carry the corresponding front edge of the sheet closely to the gage *a* opposite thereto. Each of the presser-feet *l* being down and resting by gravity on the sheet while a wiper *e* is operating on the sheet, wrinkling or curling of the sheet by the wiper will be prevented. After action on the sheet of one of each pair of wipers *e*, the presser-feet *l* are lifted by the cams on carriers G. Thereupon the cam on a carrier *j* allows a side gage *o* to drop onto the feed-board and a presser-foot *q* to drop onto the sheet and rest thereon. A side wiper *k* then carries the sheet until the side edge meets the gage *o*. Thereafter the other one of each pair of wipers *e* acts on the

sheet, the presser-feet being allowed to again rest on the sheet, so as to insure that the front edge of the sheet will be at the gages *a* when the grippers *b* seize the sheet. This repetition of action on the sheet to press the front edge against the gages *a* is desirable, since the sheet is apt to be so disturbed in its movement sidewise to meet the side gage as not to be in exact register with the front gages. There being an arm H bearing a side gage and a presser-foot for each side of a sheet, registering at either side of the sheet may be done at will. On that side at which registering is required the corresponding arm H is so set as to bring the gage *o* into the position required, and the gage is set free to drop as illustrated in Fig. 3, while the other arm H may be slid so as to bring the corresponding presser-foot and gage out of the way of the sheet, the gage and presser-foot being held up by means of a latch *t*, and the wiper removed, as illustrated by Fig. 6.

The device for registering herein described is adapted to assist in hand-feeding, the carrier to deliver the sheet onto and convey it down, the feed-board being dispensed with. If a sheet be placed by hand approximately near to the front and side gages, the wipers, or the wipers together with the presser-feet, will cause the sheet to meet the gages as desired, the ordinary accurate adjustment of the sheet by hand not being required.

In certain cases—as, for instance, when the sheets are of quite heavy paper—the presser-feet at the front and side of the sheet may be, as to all or part of them, dispensed with. The presser-feet are important, however, in many cases, and it is also desirable that the presser-feet rest on or press the sheet between the same and the support, so that the sheet, especially when quite thin, will not bend up or wrinkle when the edges thereof are forced by the wipers against the gages. Lifting the side gage as well as the presser-foot thereat provides for a free passage of the sheet to the front gages, even though the sheet, when passing the side gage, is somewhat angular with reference to the support and front gages. If the side gage was down and the edge of the sheet should touch the gage as the sheet moved forward, such friction of the edge against the gage might cause the sheet to swing so as not to be brought into accurate register. Moreover, a sheet (when in position somewhat angular with reference to the gages) may so pass the side gage that the corner of the sheet may actually pass under the raised side gage, and yet that part of the edge of the sheet which is opposite to the side gage when the front edge has reached approximately near the front gages will be within and away from under the side gage. Though the sheet (before being acted on by the wipers) be somewhat angular with reference to the gages, the front edge of the sheet will be brought by the wipers to the gages owing to the flexibility of the wipers, which permits the front edge of the sheet to slide against either gage the slight distance required to cause the edge to meet both front gages.

I claim as my invention—

1. In combination with front-gages and a support for a sheet, wipers to engage successively with the sheet to move the sheet to meet said front gages, a side-gage, and a wiper to engage with the sheet and move the sheet to meet said side-gage at a time between the successive operations on the sheet of the wipers for the front-gages, substantially as set forth.

2. The combination with front-gages and a support for a sheet and a carrier to move the sheet forward of a side-gage, a wiper to engage with the sheet and cause the sheet to meet said side-gage, and a device for lifting said side-gage while the sheet is moving forward, substantially as and for the purpose specified.

3. The combination with a sheet-support, front-gages and a device for moving the sheet to meet said front-gages, of a side gage, a presser-foot, a wiper to move the sheet under the presser-foot to meet the side-gage, and a device for lifting said presser-foot and side-gage while the sheet is moving forward, substantially as and for the purpose set forth.

4. The combination of a sheet-support, front-gages, a side-gage, a transverse shaft, wipers and carriers therefor on said shaft, a transverse, stationary rod, presser-feet adjustable on said rod, a shaft supported at right angles and geared to the transverse shaft and provided with a wiper and holder therefor, a presser-foot at said side-gage, and cams on said shafts to lift said presser-feet and the side-gage, substantially as specified.

5. In sheet-registering mechanism and in combination with front-gages, a side-gage and means for moving a sheet to meet said gages, a device for suitably lifting the side-gage so that the side-edge of the sheet or corner formed by the side and front-edge of the sheet will not strike or rub against the side-gage to displace the sheet while the sheet is moving forward to meet the front-gages, substantially as specified.

EDWARD DUMMER.

Witnesses:
EDWARD WYMAN,
FRED W. MCARDLE.