

(No Model.)

2 Sheets—Sheet 1.

S. W. BURGESS.

MACHINE FOR FEEDING AND REGISTERING SHEETS OF PAPER.

No. 559,886.

Patented May 12, 1896.

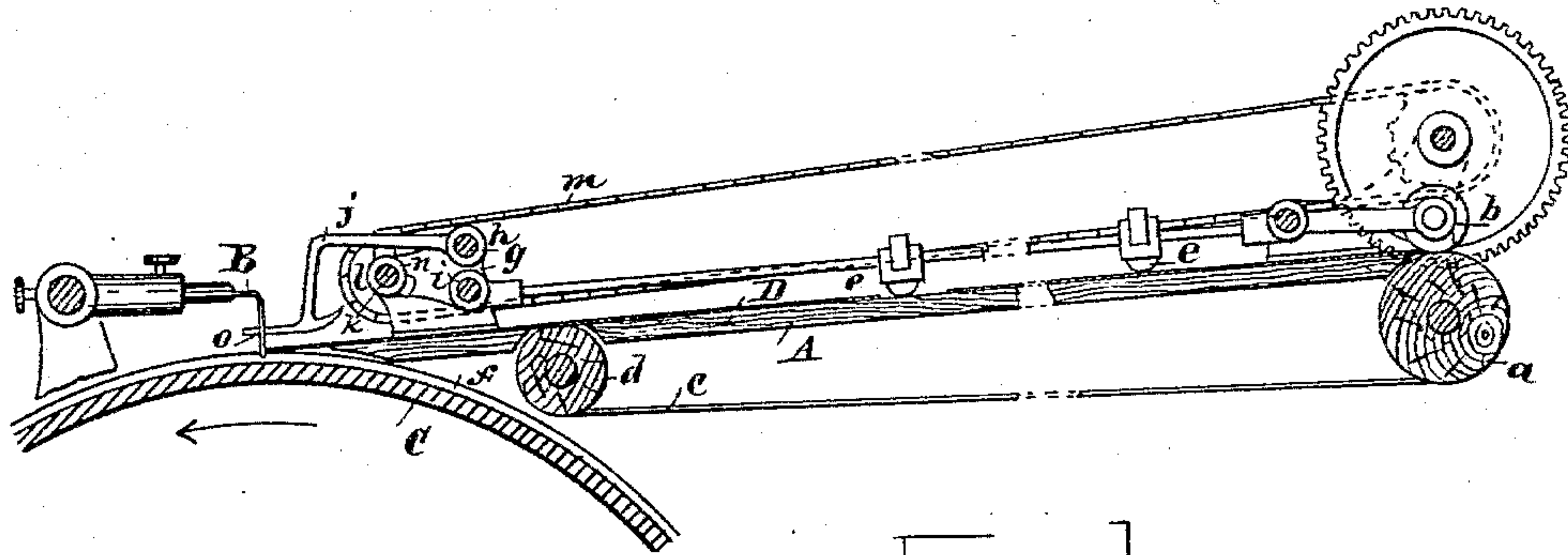
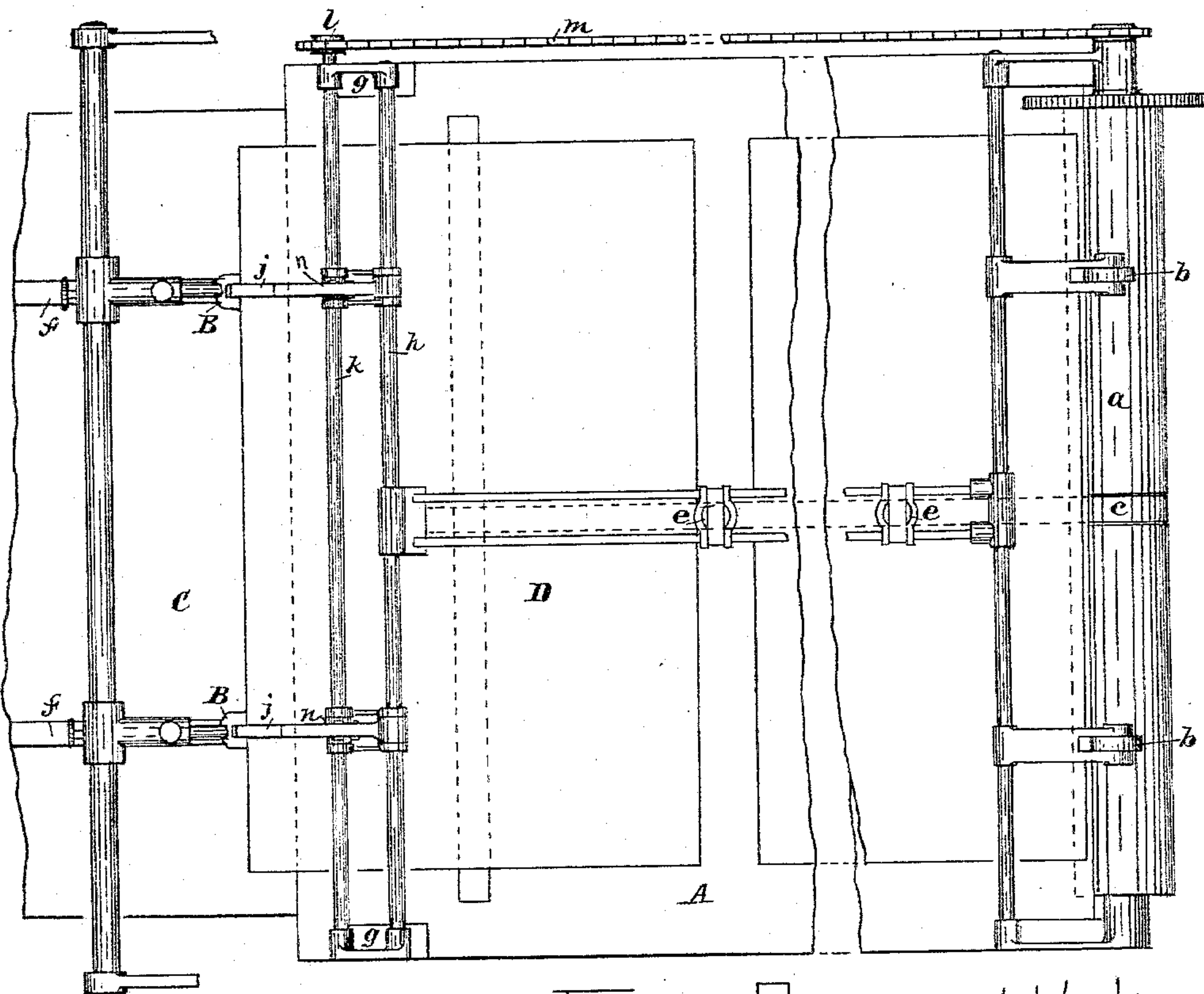


FIG. 1.



WITNESSES:

*Fred W. Alden*  
*Edward Wyman*

FIG. 2.

INVENTOR:

*Sidney W. Burgess,*  
*per Edw. Summer, Atty.*

(No Model.)

2 Sheets—Sheet 2.

S. W. BURGESS.

MACHINE FOR FEEDING AND REGISTERING SHEETS OF PAPER.

No. 559,886.

Patented May 12, 1896.

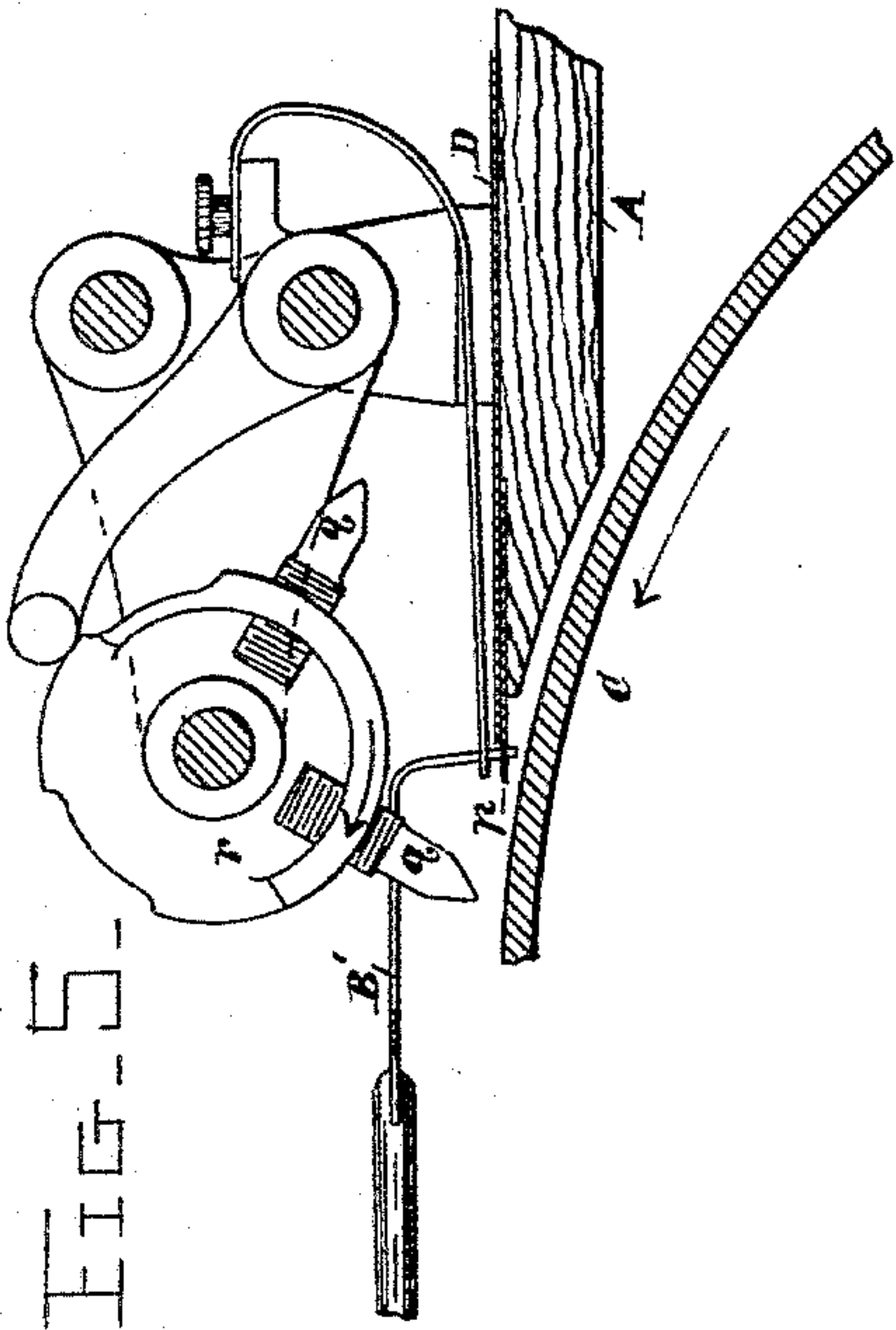


FIG. 5-

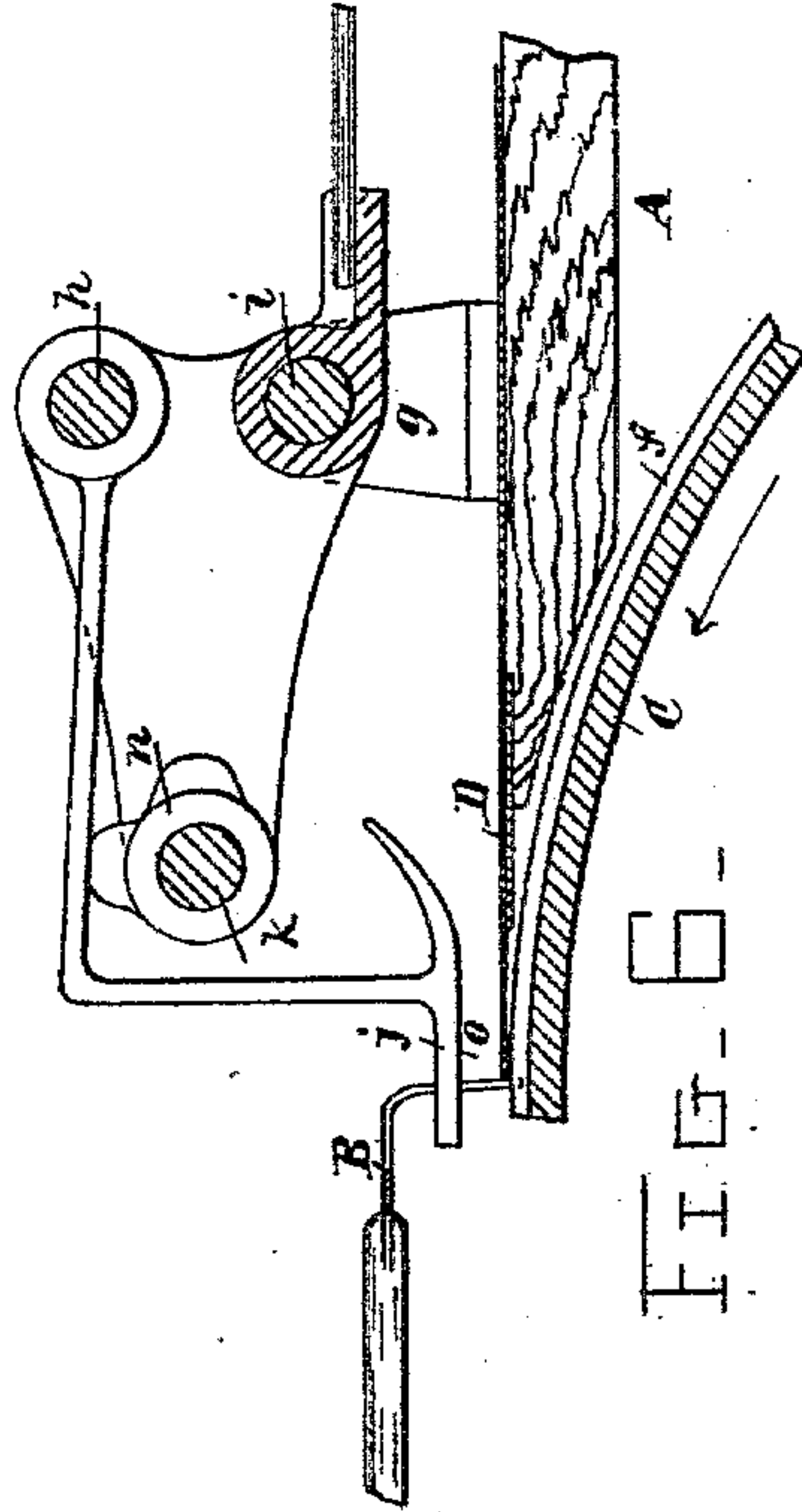


FIG. 6-

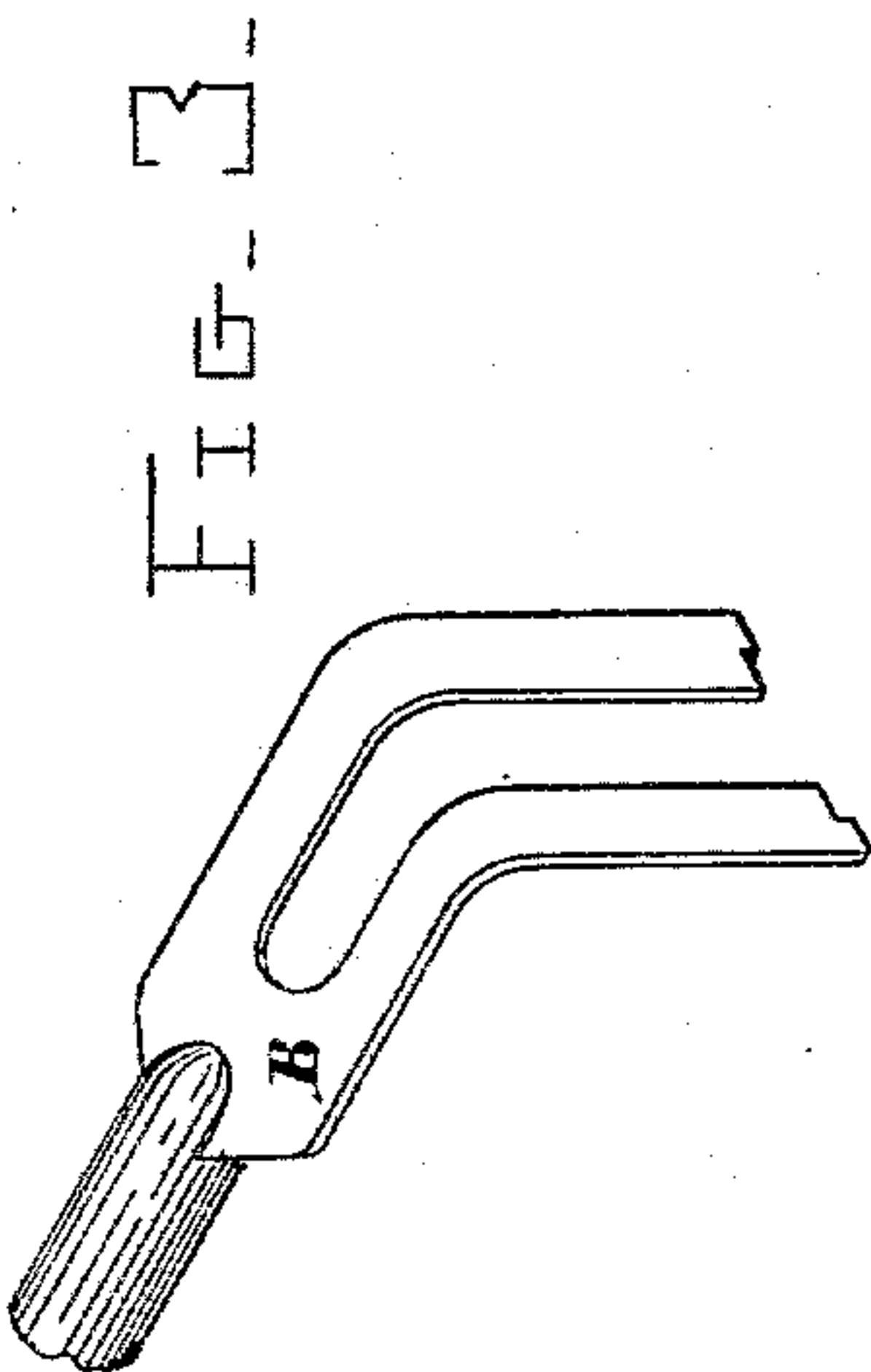


FIG. 3-

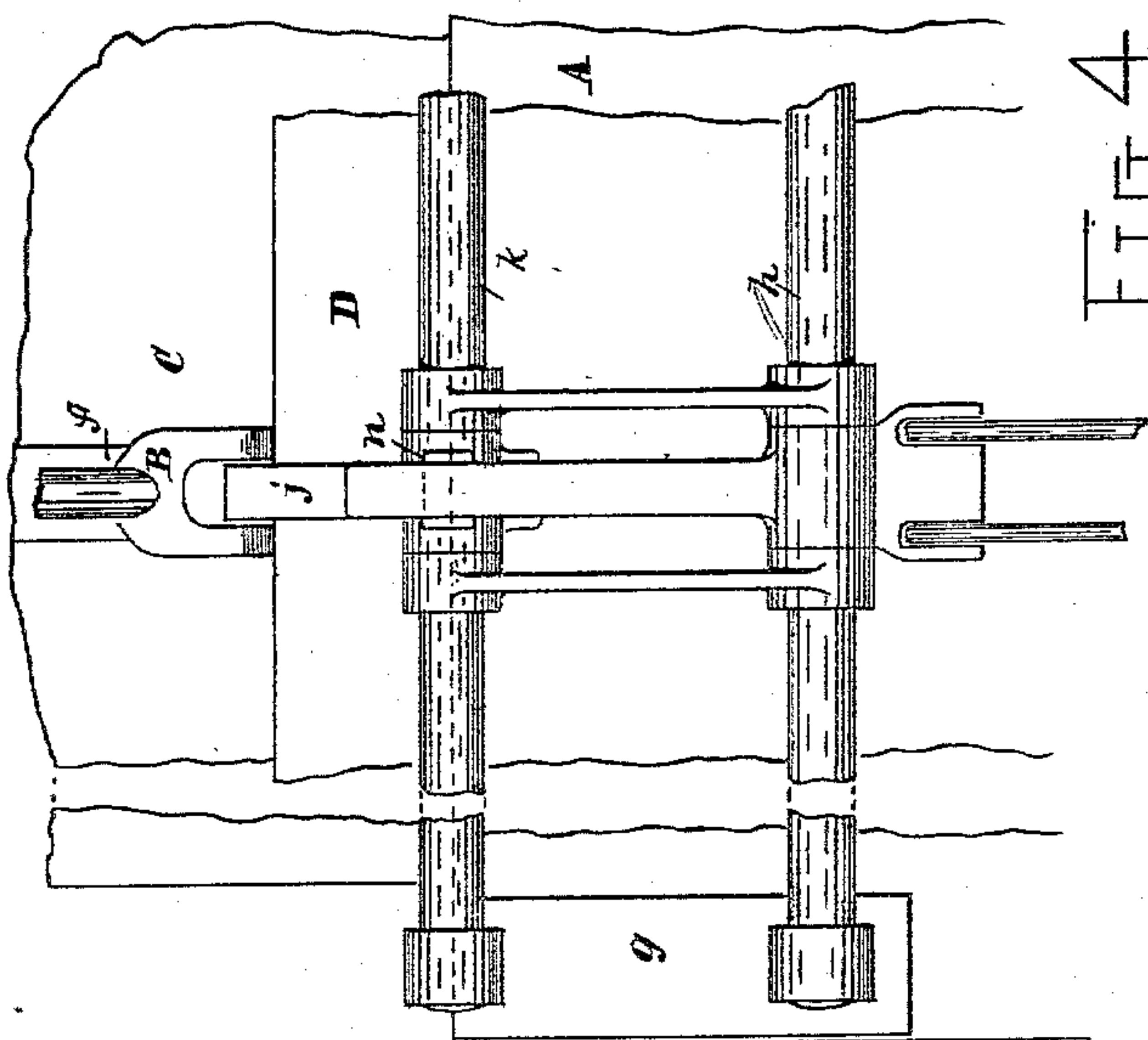


FIG. 4-

WITNESSES:

*Fred Wales W. Arde*  
*Edward Wyman*

INVENTOR:

*Sidney W. Burgess,*  
*per Edw. Dummer,*  
*Atty.*



# UNITED STATES PATENT OFFICE.

SIDNEY W. BURGESS, OF BROOKLINE, 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. 559,886, dated May 12, 1896.

Application filed December 28, 1895. Serial No. 573,615. (No model.)

*To all whom it may concern:*

Be it known that I, SIDNEY W. BURGESS, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Machines for Feeding and Registering Sheets of Paper, of which the following is a specification, reference being had to the accompanying drawings.

My invention has for its object the registering of sheets of paper when fed individually to a printing or other machine, or, in other words, placing each sheet as required in proper relation to the gages of said machine.

The invention consists in certain devices to accomplish said object, hereinafter described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a vertical section of so much of a printing-machine, sheet-feeder, and sheet-registering mechanism as is sufficient to illustrate my invention. Fig. 2 is a plan of the same. Figs. 3, 4, and 6 are respectively a perspective, plan, and side view of certain details. Fig. 5 is a side view to illustrate a modification. Figs. 3, 4, 5, and 6 are drawn on a larger scale than Figs. 1 and 2.

The feed-board A represents the support for the greater part of a sheet when placed so that the edge of the sheet is at or approximately near to the gages B. The sheet may be carried into such approximate position by means of a lower roller *a*, upper rollers *b*, belt *c*, extending around the roller *a* and a pulley *d*, and balls or rollers *e*, bearing on said belt or sheet thereon. These parts of a sheet-carrier are those of mechanism now known in the art and, together with other parts of the carrier and with means for separating sheets from a pile and delivering them individually to be seized by the roller *a* and rollers *b*, need not be further described or specified herein. Any suitable mechanism which will carry the sheet to the said position can be employed in connection with the devices of my invention, or the sheet may be carried to said position by hand.

The cylinder C may be that of a printing-machine of known construction and the gages

B be operated in the usual manner in such machine. The cylinder C represents, however, so far as relates to the present invention, any suitable body to move in the direction indicated by the arrow (which is in the direction that the sheet is to be moved to bring the same into register) and is provided with ribs *f* or a surface which serves as a support for that part of the sheet which is near the gages.

Supported by stands *g* are transverse rods *h* and *i*, on one, *h*, of which are pivoted devices *j*, which I name "tappers." Supported in bearings on the stands *g* is a transverse shaft *k*, which is caused to rotate by means of a sprocket-wheel *l* and a suitably-driven chain *m*, or may be rotated by other means. On the shaft *k* is a cam *n*, located in such relation to each tapper and of such form as to allow the tapper to drop at the required time on the moving support *f*, or onto a sheet on this support, and to drop as many times (two, as shown) for each sheet as is considered desirable to secure accurate register. Each tapper *j* is so formed as to provide a plane surface *o*, which meets the sheet, a tapper *j* and rib *f* forming two jaws, one in motion and the other at rest.

I prefer to have each gage B of the forked shape shown, so that each tapper will meet the sheet at the very edge of the sheet as well as at a distance from said edge. I have found that the edge of a thin sheet is apt to curl up or be jammed when forced against the gage to a very much less degree if the sheet be gripped at the very edge. Therefore I prefer to locate the tapper so that it will extend between the two parts of a forked gage, though with thicker paper a gage may be used of the ordinary form and the tapper be wholly at the rear of the gage.

In operation, a sheet D having been so carried that a portion of the sheet near the front edge is supported by the ribs *f*, the tappers *j* are allowed to drop onto the sheet, so that the sheet will be slightly and for a short time pinched by each tapper and the moving rib thereunder. If the front edge of the sheet has not been previously carried far enough to meet the gages, it will be so carried by the moving ribs when the sheet is so pressed onto



them. By allowing the tappers to drop several times for each sheet accurate adjustment of every sheet with reference to each gage is more positively secured. So important is it to grasp or act on the sheet at its very edge near the gage to prevent the sheet from being curled or jammed by the gage while the edge of the sheet is being pressed against the gage that I have shown in Fig. 5 a forked gage B' in combination with a known device for moving the sheet. This device embodies a fixed plate *p* or support for that part of the sheet near the gage and flexible wipers *q*, caused by rotation of their holder *r* to be carried forward and between the prongs of the gage while in contact with a sheet. By locating such wipers in such relation to the forked gage each wiper will act on the sheet at its very edge and pass off from the sheet at its edge. Much better results are thus secured. Not only is the edge not curled or jammed, but there is less likely to be a rebounding or fluttering of the sheet when the wipers leave the sheet.

The combination of devices shown in Fig. 5 presents a feature of my invention shown in the other figures, the elements being a forked gage and two jaws to pinch the sheet at the very edge, one of the jaws having no forward motion and the other to move on the sheet at its edge to cause its edge to meet the gage. Thus, as shown in Fig. 5, said jaws consist of either of the wipers *q* and the plate *p*, one jaw (the plate *p*) having no forward motion, while the other jaw (a wiper *q*) moves forward while in contact with the sheet. As shown in the other figures, said jaws consist of either of the tappers *j* and the corresponding rib *f*, one jaw (a tapper *j*) having no forward motion and the other jaw (the rib *f*) moving forward.

Accurate registering is of great importance, especially in printing. For ordinary book-work approximate registering is allowed to pass; but in color-work it is very objectionable, if indeed tolerable. Even by hand-feeding it is difficult to secure accurate register except at very slow speed. Many devices have been invented and tried which, though successful for approximate register, have not been satisfactory for accurate work. Therefore inventions like the present, by which the desired excellent results can be obtained, are important. Not only are the devices herein described simple, but by overcoming the rebounding and fluttering of the sheet at its edge, which is apt to occur when the sheet is brought to the gages, and by preventing the curling and jamming of the edges of the sheet

the sheet will be brought into such accurate position with reference to the gages at every one of the several times the sheet is printed (as for color-work) that the register required for artistic productions is attained.

I claim as my invention—

1. In registering mechanism for a printing or other machine the combination of a forked gage, two jaws extending between the prongs of said gage so as to pinch a sheet at its very edge, one of said jaws being adapted to move in the direction of the required movement of the sheet the other jaw being prevented from making such forward movement, and one of said jaws being adapted to be brought into contact with the other jaw or with the sheet between the jaws, and means for causing said motions of the jaws, substantially as specified.

2. In registering mechanism for a printing or other machine the combination of a gage, a support for that part of a sheet at the gage, and a tapper brought intermittently into contact with said support or a sheet between said support and said tapper, said support being adapted to move in the direction of the required movement of the sheet, substantially as specified.

3. In registering mechanism for a printing or other machine, the combination of a forked gage, a support for that part of a sheet at the gage, which support is mounted to move in the direction of the required movement of the sheet, a tapper to be brought intermittently into contact with said support or a sheet between said support and tapper, and means for causing the intermittent action of said tapper, substantially as specified.

4. In registering mechanism for a printing or other machine a cylinder mounted to revolve and serving as a support for a sheet at its front edge, a gage to be met by said edge, a tapper to be brought intermittently into contact with said cylinder or the sheet between said cylinder and tapper, and means for causing the intermittent action of said tapper, substantially as specified.

5. The combination of a cylinder of a printing-machine provided with ribs to support a sheet at its front edge, a gage at each of said ribs, a tapper at each of said gages and movable to meet intermittently said ribs or a sheet between said ribs and tappers, and means for causing the intermittent movement of the tappers, substantially as specified.

SIDNEY W. BURGESS.

Witnesses:

R. T. LAFFIN,  
EDW. DUMMER.