

No. 615,889.

Patented Dec. 13, 1898.

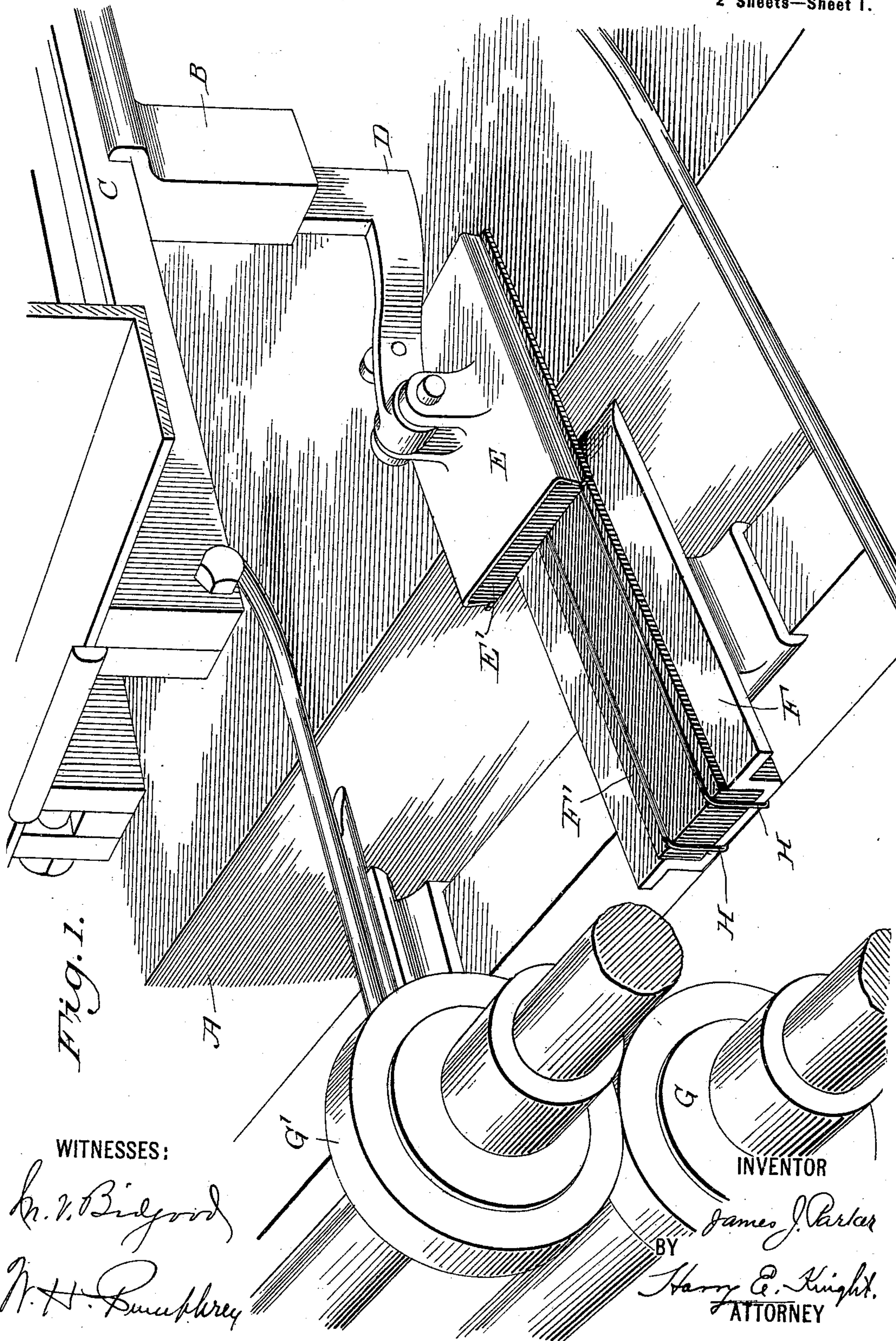
J. J. PARKER.

SHEET SEPARATING DEVICE FOR PAPER FEEDING MACHINES.

(Application filed June 8, 1897. Renewed Nov. 15, 1898.)

(No Model.)

2 Sheets—Sheet 1.





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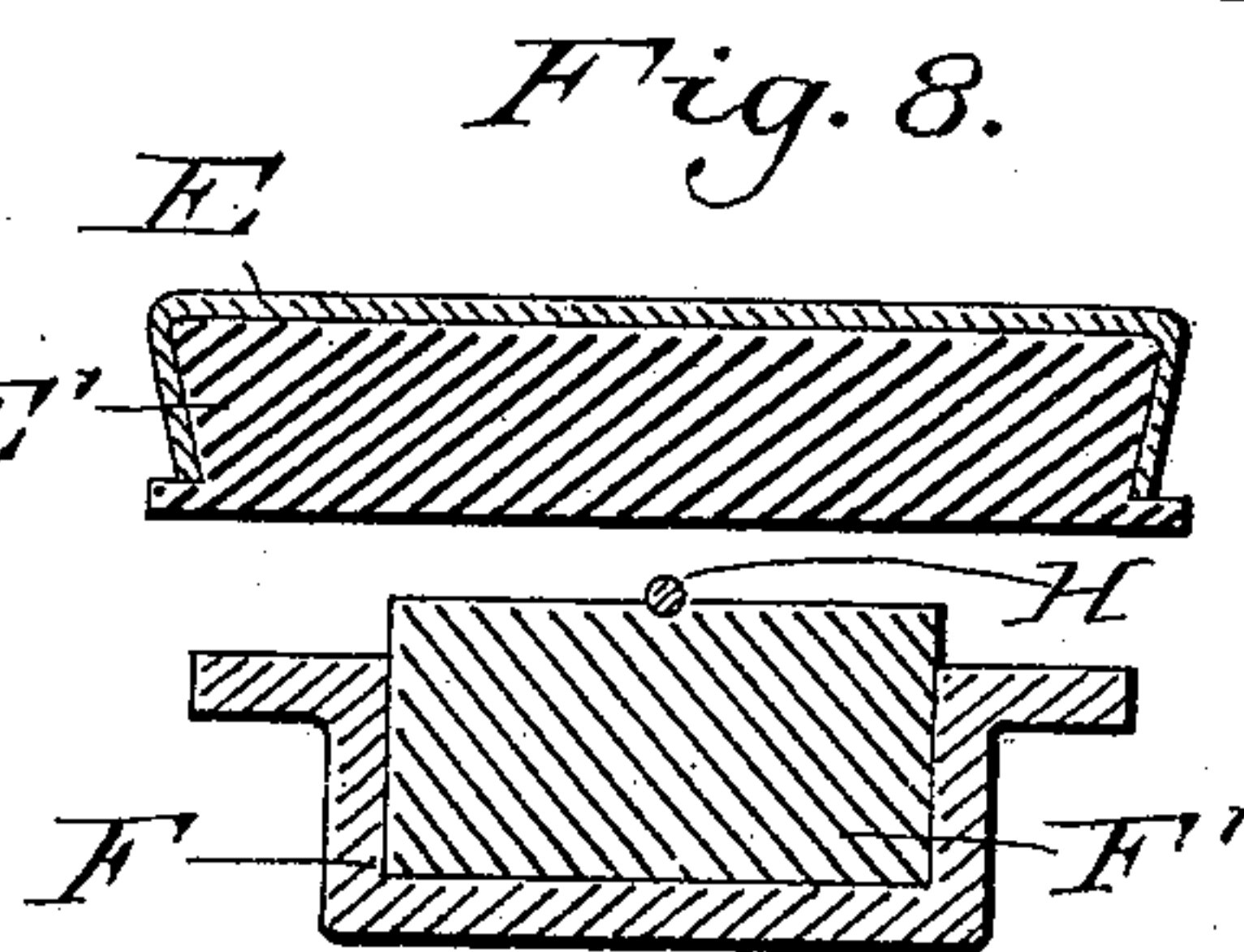
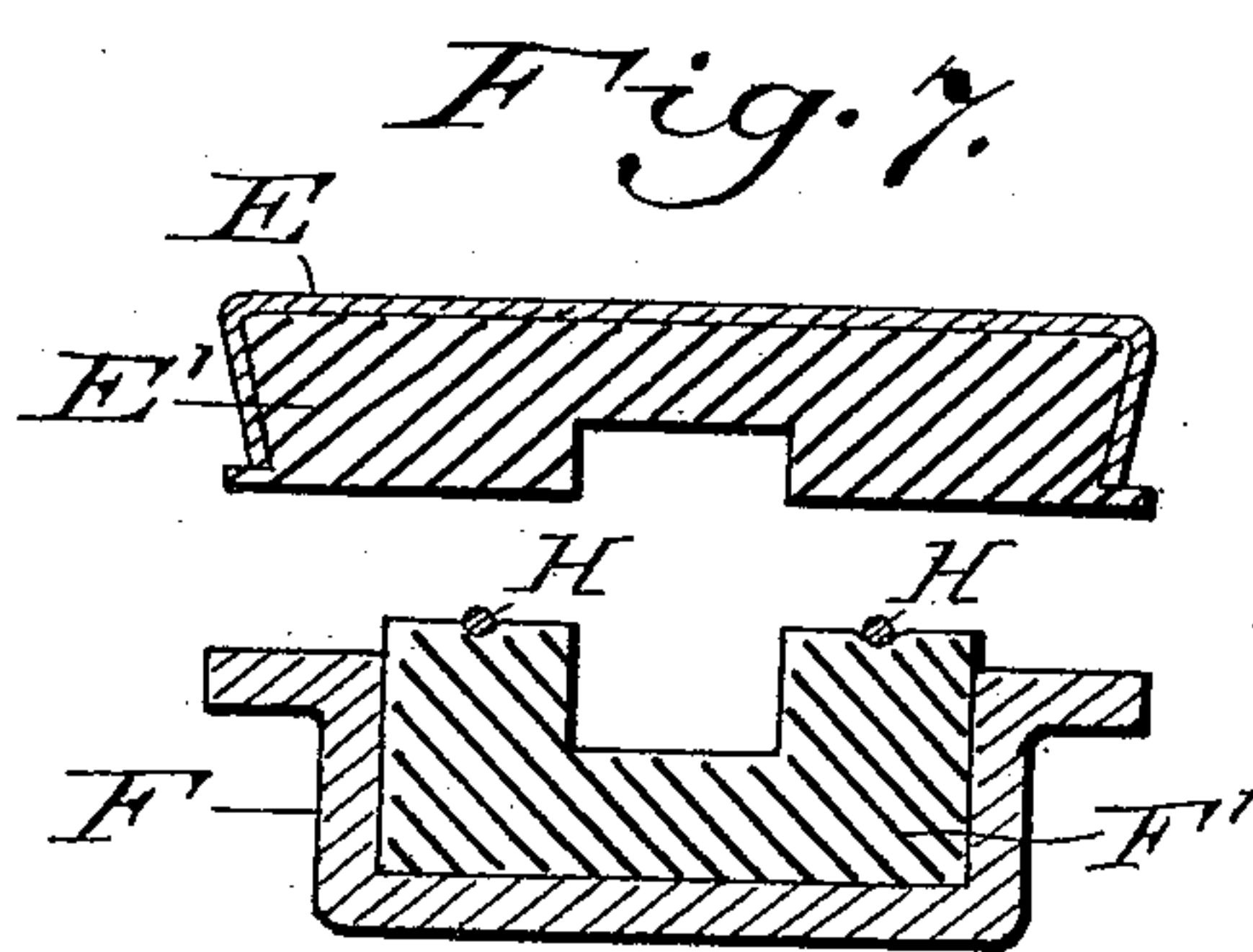
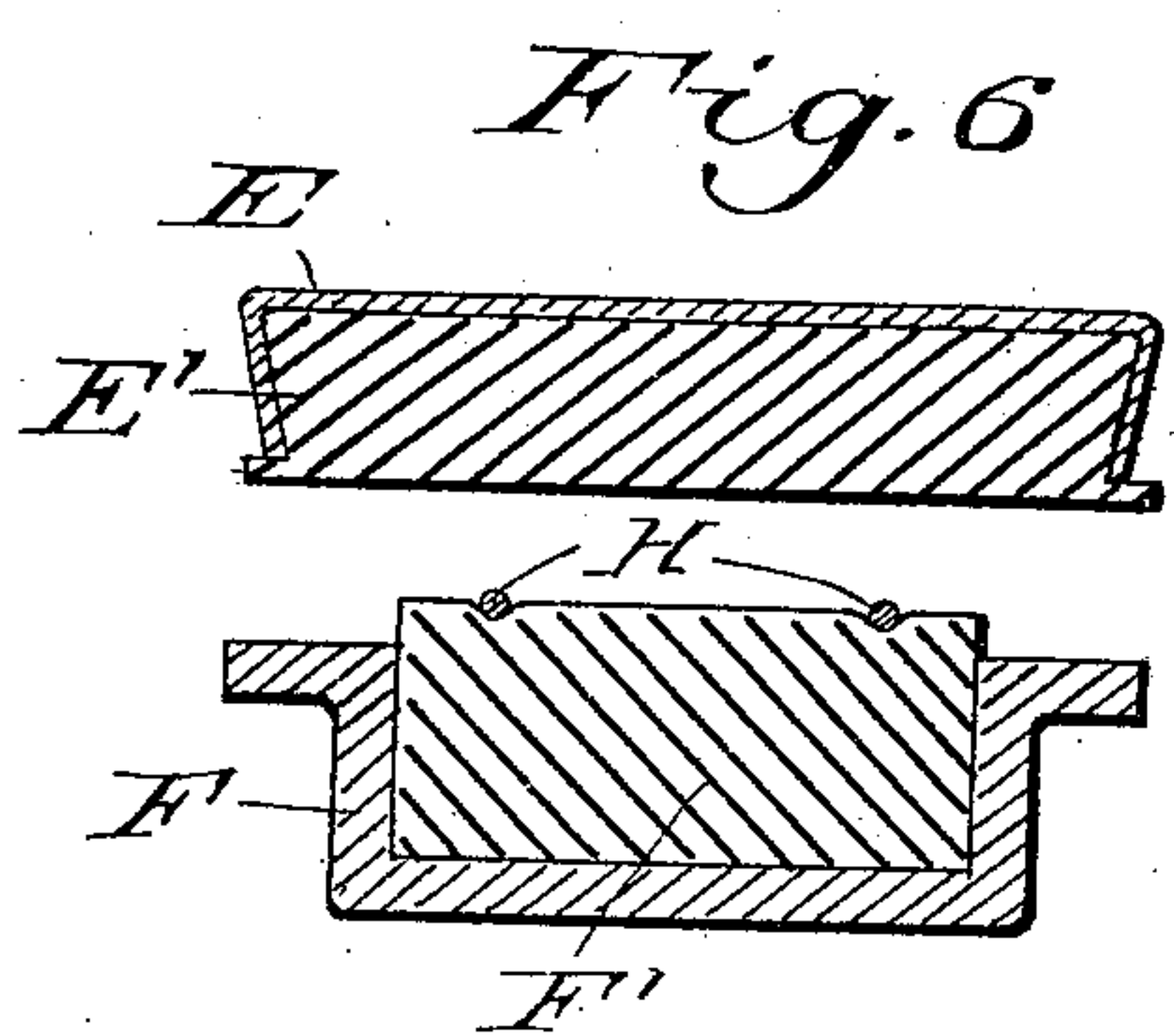
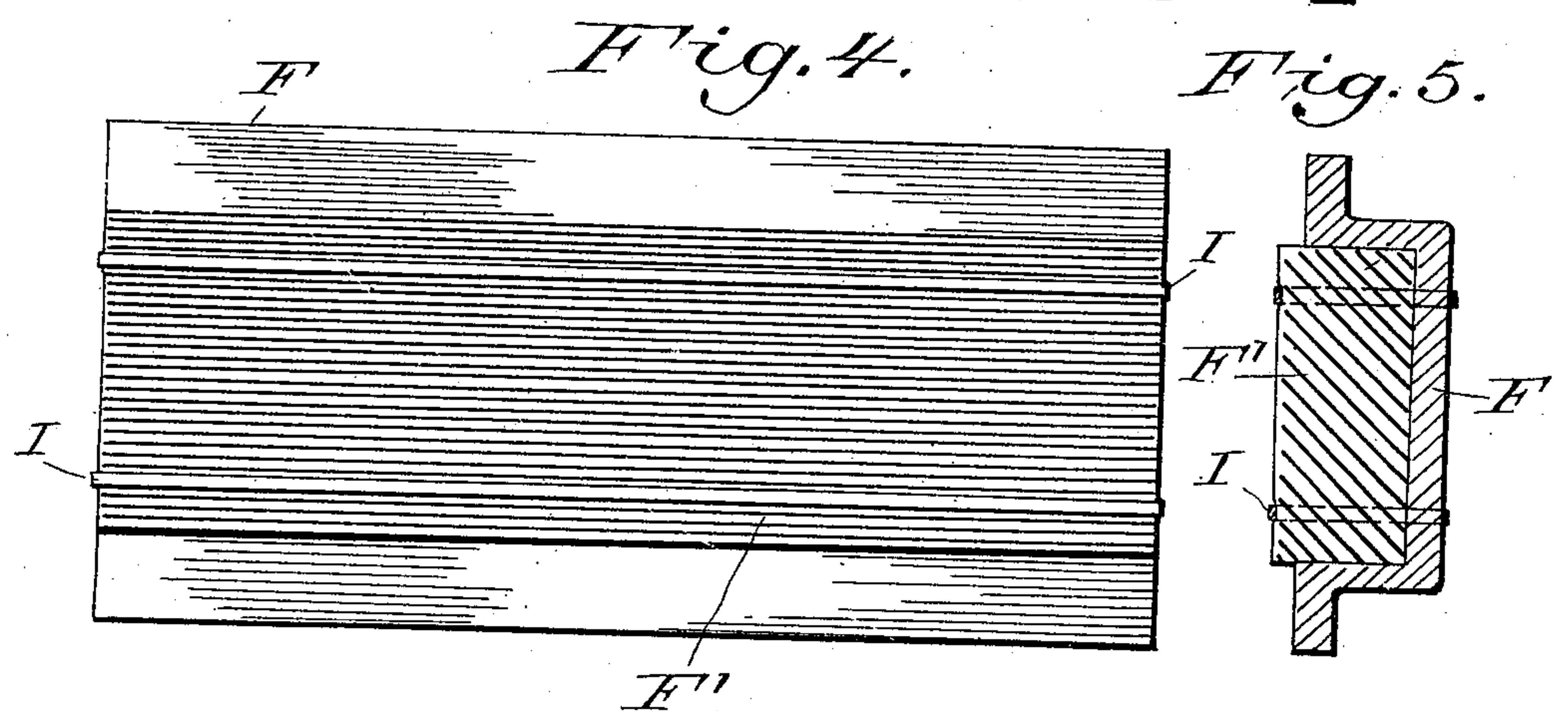
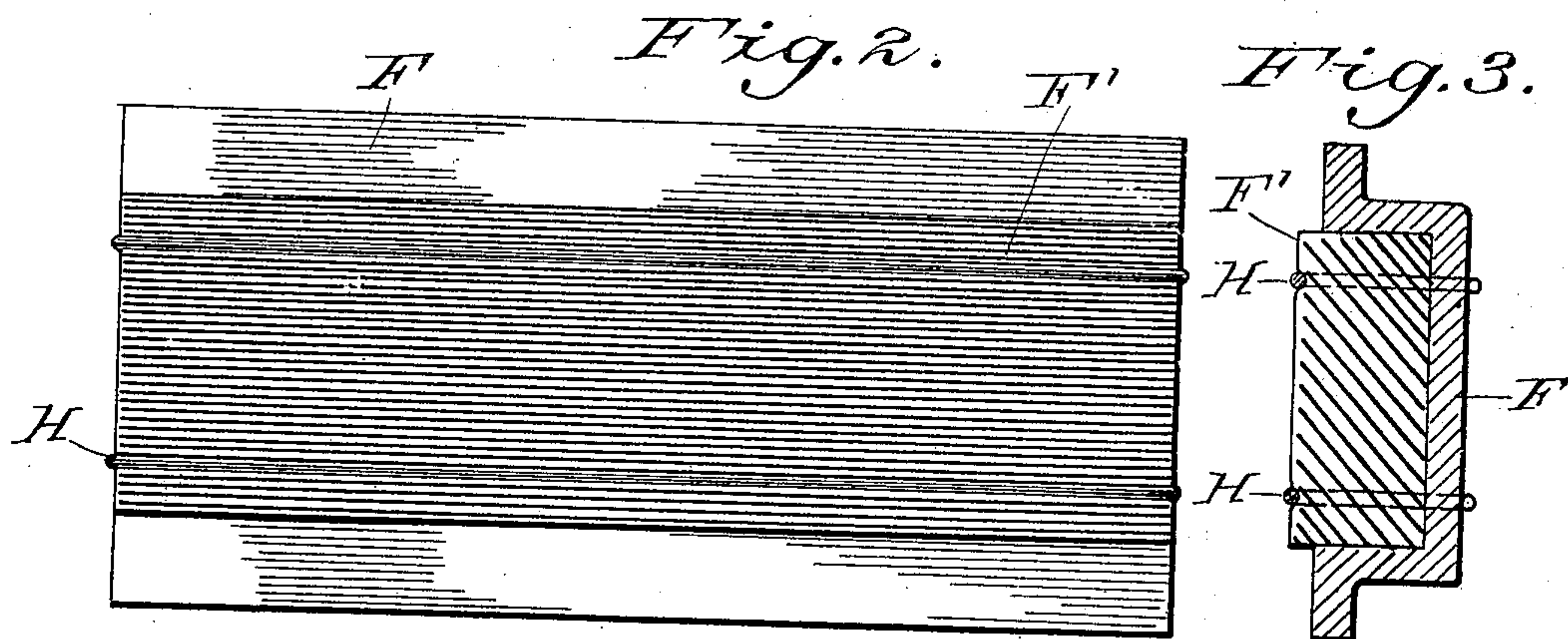
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SHEET SEPARATING DEVICE FOR PAPER FEEDING MACHINES.

(Application filed June 8, 1897. Renewed Nov. 15, 1898.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

*W. V. Bidgood*  
*N. H. Humphrey*

INVENTOR

*James J. Parker*  
BY *Harry E. Knight*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

JAMES J. PARKER, OF NEW YORK, N. Y., ASSIGNOR TO TALBOT C. DEXTER,  
OF PEARL RIVER, NEW YORK.

## SHEET-SEPARATING DEVICE FOR PAPER-FEEDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 615,889, dated December 13, 1898.

Application filed June 8, 1897. Renewed November 15, 1898. Serial No. 696,520. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES J. PARKER, a citizen of the United States, residing at New York, (Brooklyn,) county of Kings, State of New York, have invented certain new and useful Improvements in Sheet-Separating Devices for Feeding-Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in frictional sheet-separating devices adapted to be applied to paper-feeding machines for insuring the delivery of the sheets singly from the machine.

Much difficulty has been encountered in the past in an effort to devise a sheet-separating device which will invariably prevent the feeding of more than one sheet from the machine at each stroke. The oldest forms of frictional separating-machines employed two soft-rubber members, one of which was stationary with relation to the direction of feed, while the other was movable in the direction of feed. This old form of separating device did not accomplish the result, because the two members possessed practically the same frictional quality and the sheets were torn and rumpled between them. Later forms of devices employed soft rubber for the movable or feeding member of the separator and a harder material—such as harder rubber, metal, or wood—for the stationary separating member. These later forms of devices with materials of different degrees of hardness have not proven altogether satisfactory, because the frictional quality of the harder material, though sufficiently inferior to the movable feeding member to allow the free movement of the top sheet, is not sufficient to properly hold the under sheets of the pile back against the friction and adhesion of the upper sheet which is being fed off.

I have invented an improved form of separator which entirely obviates the difficulties enumerated by which I retain the desirable high frictional quality of the soft rubber for the separating member and at the same time provide a sufficient difference in frictional capacity between the separating and feeding members of the separator to insure the proper feeding of the sheets from the machine.

My invention consists, broadly, in forming the separating or sheet-retarding member of a block or pad of rubber having lines or strips of material of less frictional capacity traversing or extending across or through its working surface approximately in the direction of feed and in combining with said separating or sheet-retarding member a cooperating feeding member of soft rubber which is adapted to pass the successive upper sheets of a pile over the separating member. This combination of separating and feeding members is important, because the separating or sheet-retarding member has the superior frictional quality of the soft rubber and at the same time is made of less frictional capacity than the sheet-feeding member, thereby providing a frictional resistance which will be sufficient to overcome the adhesion between two sheets, but which will be enough inferior to the frictional quality of the feeding member to avoid the objectionable holdback of the upper sheet which is being fed from the machine. The lines of material of inferior frictional quality, which extend over or through the surface of the soft-rubber separating member, extend in the direction of feed and serve as guiding-surfaces for the upper sheet to slide upon.

I prefer to form the separating member of my improved sheet-separator of blocks or pads of soft rubber having one or more rods or wires or strips of metal or equivalent material secured to their frictional surface and extending in the direction of feed.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings and afterward point out the novelty with more particularity in the annexed claims.

In said drawings, Figure 1 is a front perspective view of one of a pair of sheet separating and feeding devices having my invention applied thereto. Fig. 2 is a plan view of one of the sheet-separating members. Fig. 3 is a cross-sectional view of the same. Fig. 4 is a view similar to Fig. 2, and Fig. 5 is a view similar to Fig. 3, showing a slight modification. Fig. 6 is a cross-sectional view of the feeding and separating members em-



bodysing my invention. Fig. 7 is a similar view showing slight modification. Fig. 8 is a similar view showing further modification.

For the purpose of illustrating my invention I have represented it as applied to the sheet feeding and separating devices described in an application filed by Talbot C. Dexter December 28, 1896, Serial No. 617,263, for improvements in paper-feeding machines. I do not limit myself to the illustrated application of my invention, but consider my invention sufficiently broad to cover the novel principle set forth applied to any form of sheet-separating machine employing two members between which the successive sheets are passed from a pile.

Referring first to Fig. 1, A is a pile of sheets adapted to be supported, as customary, upon a platform or table. (Not shown.)

B is a reciprocating carriage traveling upon a track C and adapted to have motion imparted to it by any suitable mechanism. (Not shown.)

D is a vertically-movable arm mounted in the carriage B and adapted to be moved to and from the plane of feed of the sheets at the beginning and ending of its strokes, said mechanism being of any suitable construction.

E is an upper movable feeding member of the sheet-separator, comprising, as illustrated, a metal backing within which is secured a block or pad of soft rubber E'.

F is a metal casing or bracket within which is supported a block or pad of soft rubber F', the casing F being mounted at the delivery end of the machine adjacent to the forward edge of the pile of sheets A.

F and F' indicate one of the lower separating members, two of which are preferably employed on each feeding-machine.

G and G' are the lower and upper rolls of the drop-roller sheet-delivering mechanism.

The parts of the structure above described are the same as described and illustrated in the above-named application of Talbot C. Dexter, Serial No. 617,263, and I make reference to said application for a fuller description of the manner of operating said devices.

My invention consists in providing the soft-rubber blocks or pads F' of the lower separating members of the strips of material, such as wire or rods H, (shown in Figs. 1, 2, 3, 6, 7, and 8,) or flat metal strips I, such as shown in Figs. 4 and 5, which strips or lines of material have a frictional resistance which is inferior to the frictional quality of the soft-rubber pad F'. The wires, rods, or strips H or I extend longitudinally of the soft-rubber blocks or pads F' or in the direction of the feed of the sheets in passing from the feeding-machine. There may be two rods, wires, or strips H or I passing over the surface of each retarding-pad F', as shown in Figs. 1 to 7 of the drawings, or I may employ but a single rod or wire, as shown in Fig. 8.

I have represented the strips or lines of material of inferior frictional quality upon the surface of the soft-rubber separating member in the form of wires or flat strips; but it will be clear that practically the same result could be accomplished by forming ribs or strips of other material upon the surface of the separating member, and I do not wish to limit myself to the particular material nor the form or manner in which the material is applied to the surface of the soft-rubber retarding-bed, the essential feature of which is that said strips or lines of material must extend in approximately the direction of feed of the sheets, and they must be of a frictional quality inferior to the frictional quality of the soft-rubber retarding beds or pads.

In separating sheets with my improved separator above described it will be found that the friction of the lower separator member will be sufficiently greater than the friction and adhesion between two sheets to hold back the under sheets which follow the top sheet from the pile, but that it will be sufficiently inferior to the friction of the upper movable or feeding member of the separator to avoid its interference with the passage of the successive sheets singly from the machine. The rods, wires, or strips of metal or other inferior frictional material prevent the forward edge of the top sheet from adhering to the soft rubber of the lower separating member while it is passing from the machine, thus avoiding the tearing or rumpling of the sheet, which has been a serious difficulty with all previous machines employing soft rubber for the lower separating member. These wires or strips also serve as slides or guides upon which the upper sheets slide in passing out of the machine.

I consider my invention of great importance, because it enables me to take advantage of the superior frictional quality of soft rubber for a retarding or separating member of a sheet-separator without encountering the serious objections which have heretofore prevented its use.

Though I have described the sheet-retarding bed as composed of soft rubber, I do not mean to limit myself to the use of soft rubber. In practice I may use a soft rubber which is somewhat harder than the rubber of the feeding member and still keep within the scope of my invention.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a friction separator for paper-feeding machines, the combination of an upper movable rubber-faced feeding-pad with a lower stationary separating-bed of rubber having lines or strips of material of an inferior frictional quality extending over or through its surface in the direction of feed, as set forth.

2. A sheet separator for paper-feeding machines comprising a bed of rubber having its



friction-surface traversed by pieces of inferior frictional material extending in lines parallel to the direction of feed, and a rubber-faced feeding-block cooperating therewith,  
5 as set forth.

3. In a paper-separating device for feeding-machines, a bed having a surface traversed,

in the direction of feed, by lines of material of different frictional resistance, substantially as set forth.

JAMES J. PARKER.

Witnesses:

TALBOT C. DEXTER,  
M. V. BIDGOOD.