Oct. 13, 1931. C. BINGHAM 1,827,638

VISIBLE INDEX SHEET

Filed June 29, 1929 2 Sheets-Sheet 1

Fig. 1.

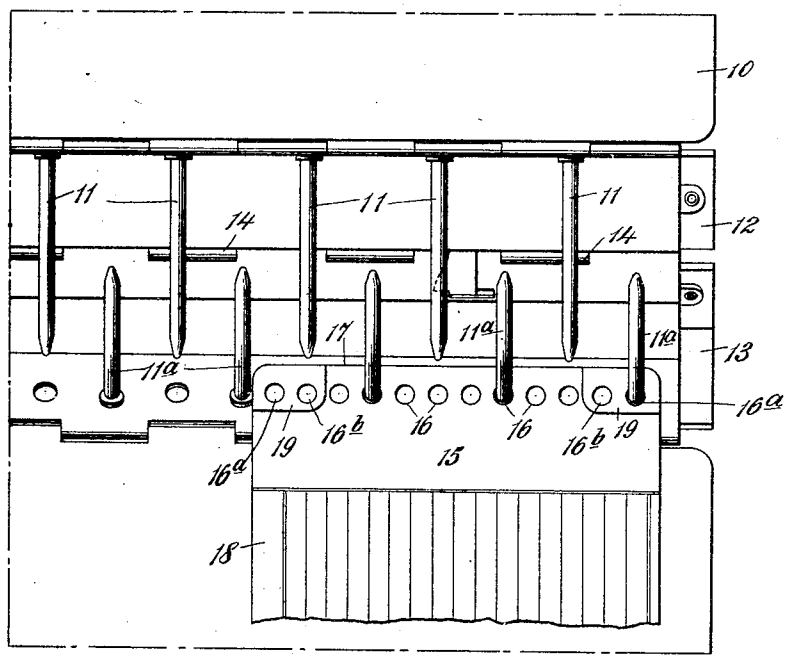
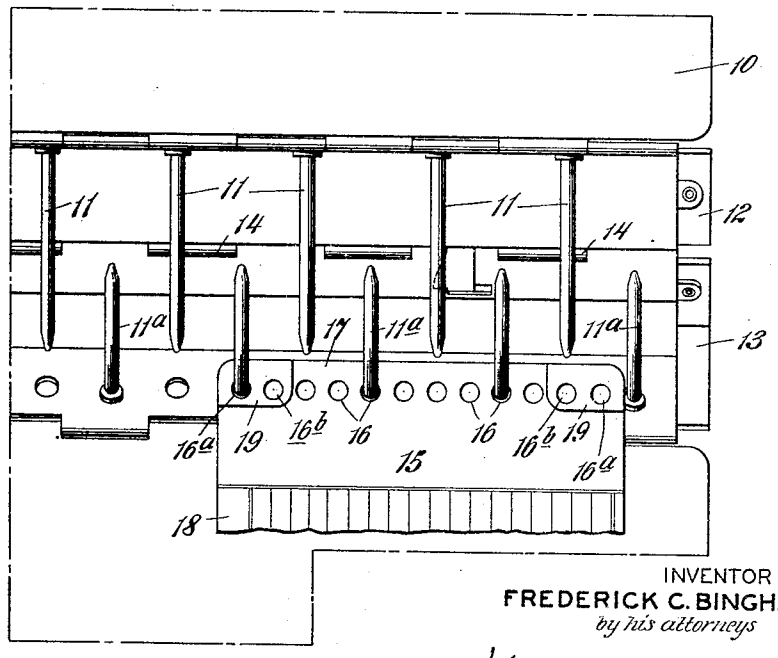



Fig. 2.




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Fig. 4.

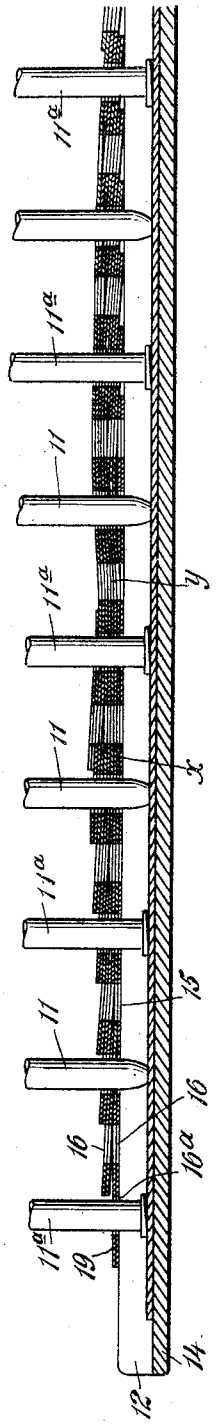
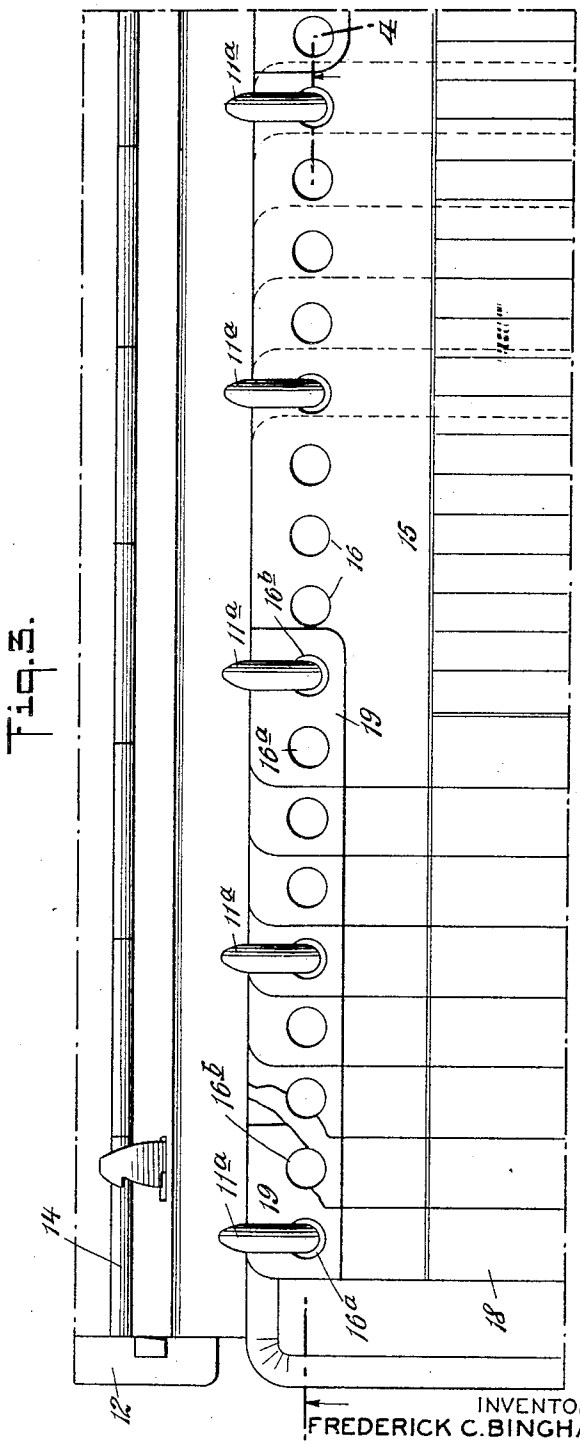



Fig. 5.




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Patented Oct. 13, 1931

1,827,638

# UNITED STATES PATENT OFFICE

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## VISIBLE INDEX SHEET

Application filed June 29, 1929. Serial No. 374,868.

This invention relates to reinforced loose sheets and is especially well adapted for use in prong binders in which visibility of the top or bottom edge is desired.

One object of the invention is to provide a less bulky and a more economical reinforced sheet than those heretofore known.

In the drawings

Figure 1 shows a plan view of part of a sheet, made according to my invention, inserted upon the prongs of a partially open prong binder,

Figure 2 is a view similar to Figure 1, but shows the sheet in a different position in the prong binder,

Figure 3 is a plan view of a portion of one side of an open prong binder, in which a number of the improved sheets are filed with a margin of each visible,

Figure 4 is an exaggerated longitudinal section through the sheets on the line 4—4 of Fig. 3, looking in the direction of the arrow. One side of the binder is shown, with the prongs in closed position.

The improved sheets are adapted for use in prong binders of the well-known type in which alternate prongs are borne by opposite sides of the binder.

Sheets used for visible filing in prong binders usually contain a plurality of perforations. In order to provide for varying amounts of overlap, the perforations of the sheets are commonly placed closer together than are the prongs of the binder. For example in a given length of the sheet there may be twice as many perforations as there are prongs on the same length of binder.

When the binder is closed, more than two prongs are normally threaded into perforations in each sheet,—at least one prong from one half of the binder, and least two prongs from the other half.

It is common experience that perforated sheets in any prong binder are peculiarly subject to strain and the perforations are liable to tear out so that the sheets can no longer be retained in the binder.

To avoid this mutilation and to strengthen the sheet, it has been common to use reinforcements of various kinds.

The type of reinforcement heretofore employed in sheets to be used in prong binders for visible filing, has been a reinforcement extending the entire length of the side of the sheet containing the perforations.

The inventor has observed, however, that there is little or no strain on the sheet at the prongs intermediate the ends of the sheet, but that practically all the strain is exerted at the prong which is threaded into the sheet nearest each end thereof.

As pointed out above there are usually more perforations in the sheet than the sum of the prongs from both sides of the binder which will pass through that sheet.

The inventor has discovered that in a binder of the type described, if reinforcement is placed around only a few final perforations at each end of the series, the prong threaded into the perforation nearest each end of each sheet will, when the binder is closed, be surrounded by reinforcement. That this would be the case is not obvious in threading the sheets upon the prongs of the open binder.

In the binder 10 illustrated in the drawings there are series of the usual curved prongs 11 and 11*a* mounted on the opposite sides 12 and 13 of the binder, in alternating relation.

Loose sheets 15 contain a series of perforations 16 along one side 17 of the sheet adjacent its edge, the perforations being spaced apart uniform distances from center to center. The perforated side 17 is at right-angles to the margin 18 which is visible when the sheets are filed in overlapping relation.

In standard prong binders the prongs are customarily spaced apart multiples of 3/8 of an inch from center to center. For this reason it is convenient to space the perforations 16 at uniform intervals of 3/8 of an inch from center to center. Of course if the prong binder is not standard and the prongs are spaced apart by multiples of some other unit of linear measurement than 3/8 of an inch, the holes in the sheets will appropriately be spaced from each other by that unit of linear measurement.

The reinforcement 19 is placed at each end of the serially perforated side 17 and is made long enough to surround a few final perfora-

tions. For use in the standard type of prong binder it is sufficient to have the reinforcement 19 surround the final perforation 16*a* and the next-to-last perforation 16*b* at each end of the side 17.

In any prong binder in which the prongs are spaced from each other a multiple of the unit of linear measurement by which the perforations in the sheet are spaced apart, and in which the distance between succeeding prongs is uniform, the length of the reinforcement may be such as to include one less hole than the number required to receive two successive prongs. For example, referring to the right-hand side of Figure 1, it would take three holes to receive prong 11*a* and succeeding prong 11, consequently reinforcement 19 need be only long enough to surround two perforations or holes, namely 16*a* and 16*b*.

When the sheets are filed in overlapping relation with a margin of each visible, as shown in Figure 3, some of the sheets will be inserted upon the prongs of one side of the binder in the position shown in Figure 1. Others will at the same time be inserted in the position shown in Figure 2, and still others in other positions. Yet in every instance, when the binder is closed, there will be a prong inserted into one of the reinforced holes of each end of the sheet.

The reinforcement may be of paper, textile material, or any suitable substance.

Making each reinforcement 19 in one piece or more is optional, but a saving of labor is effected by making it in one piece.

Reinforcing only the portions of the side of the sheet surrounding the last few holes at each end effects a great saving in reinforcing material and in adhesive for applying the same. Reinforcing the side 17 only around the few extreme holes at each end has the additional advantage of increasing the capacity of the binder. At the middle of the binder, the thickness of the bundle of sheets is increased by the reinforcement only half or less, instead of being doubled as is the case when the entire edge is reinforced. For example, in Figure 4 a longitudinal section is shown of eight of the improved sheets filed in a prong binder, with a margin 18 of each visible. X and Y are points where the section passes through all eight sheets. In the ordinary reinforced sheets, where a reinforcement extending the length of the perforated side is used, the thickness at X or Y would be double the thickness of the un-reinforced portions of the same number of sheets (assuming the reinforcing material is of the same thickness as the sheet itself), or sixteen times the thickness of a single un-reinforced sheet. Using the improved sheets, on the other hand, at Y there is no increase of thickness over that of the un-reinforced body of the sheets, while at X, which is the point of greatest thickness, the bundle has only eleven times the thickness of the single un-reinforced sheet, instead of sixteen times.

I claim:

1. A sheet for prong binders, having a series of perforations adjacent one edge, the perforations being spaced apart uniform distances from center to center, and having a reinforcement surrounding only the two extreme perforations at each end of the series, the thickness of the reinforcement being such that the total thickness of the sheet and the reinforcement is only about double the thickness of the sheet alone.

2. A prong binder having successive prongs alternately on opposite sides thereof, said prongs being spaced apart a uniform multiple of a unit of linear measurement, in combination with a sheet having a series of perforations along one side at uniform intervals of said unit of linear measurement and a reinforcement at each end of said perforated side, each reinforcement surrounding a number of perforations equal to said multiple.

3. A prong binder having successive prongs alternately on opposite sides thereof, said prongs being spaced apart a multiple of a unit of linear measurement, in combination with a sheet having a series of perforations along one side at uniform intervals of said unit of linear measurement and a reinforcement at each end of said perforated side, each reinforcement surrounding only the two final perforations, the thickness of the reinforcement being such that the total thickness of the sheet and the reinforcement is only about double the thickness of the sheet alone.

4. In a prong binder having its prongs spaced apart a multiple of a given unit of linear measurement, overlapping sheets each having a visible margin, each sheet having a series of perforations adjacent one edge, the perforations being spaced apart said given unit of linear measurement, in combination with a reinforcement surrounding only a few of the perforations nearest each end of the perforated side, the thickness of the reinforcement being such that the total thickness of the sheet and the reinforcement is only about double the thickness of the sheet alone.

5. In a prong binder having its successive prongs spaced apart a uniform multiple of a given unit of linear measurement, overlapping sheets each having a visible margin, each sheet having a series of perforations adjacent one edge, the perforations being spaced apart said given unit of linear measurement, in combination with a reinforcement surrounding a few of the perforations nearest each end of the perforated side, the number of perforations surrounded at each end being equal to said multiple.

6. In a prong binder having staggered prongs, overlapping sheets having a visible

margin, each sheet having a series of perforations adjacent one edge, the perforations being spaced apart a uniform unit of linear measurement from center to center, a prong from one side of the binder and more than two prongs from the other side of the binder adapted to be threaded into each sheet through several perforations, in combination with reinforcements at each end of each sheet at points surrounding the prong passing through the sheet nearest each end thereof.

7. A prong binder having successive prongs alternately on opposite sides thereof, said prongs being spaced apart a uniform multiple of a unit of linear measurement, in combination with a sheet having a series of perforations along one side at uniform intervals of said unit of linear measurement and a reinforcement at each end of said perforated side, the length of the reinforcement being such as to include one less hole than the number required to receive two successive prongs.

In testimony whereof I have signed my name to this specification.

FREDERICK C. BINGHAM.