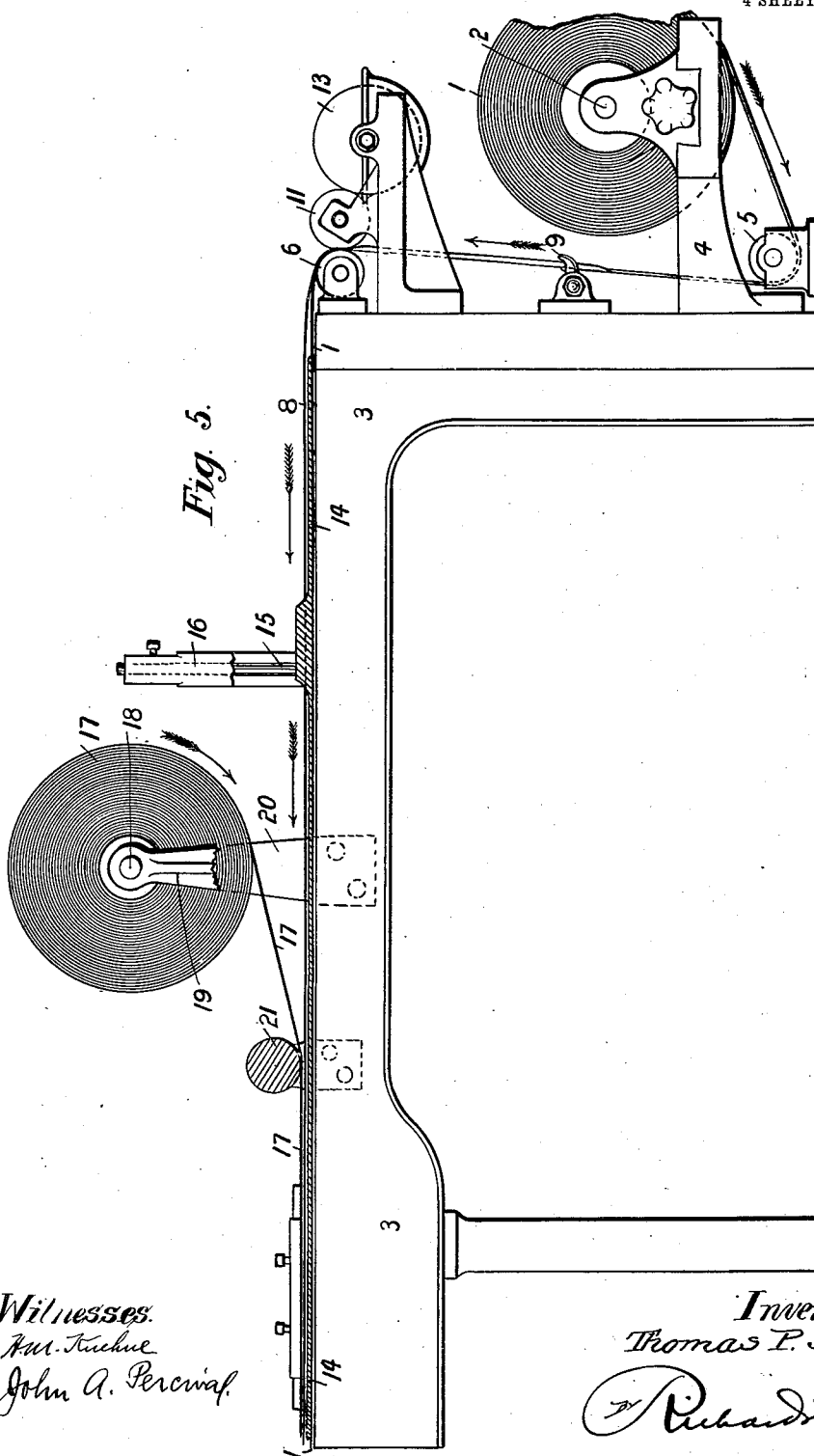


No. 820,071.

PATENTED MAY 8, 1906.

T. P. SMITH.
PAPER BAG MAKING MACHINE.
APPLICATION FILED JUNE 21, 1905.

4 SHEETS—SHEET 2.



Witnesses:
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John A. Percival

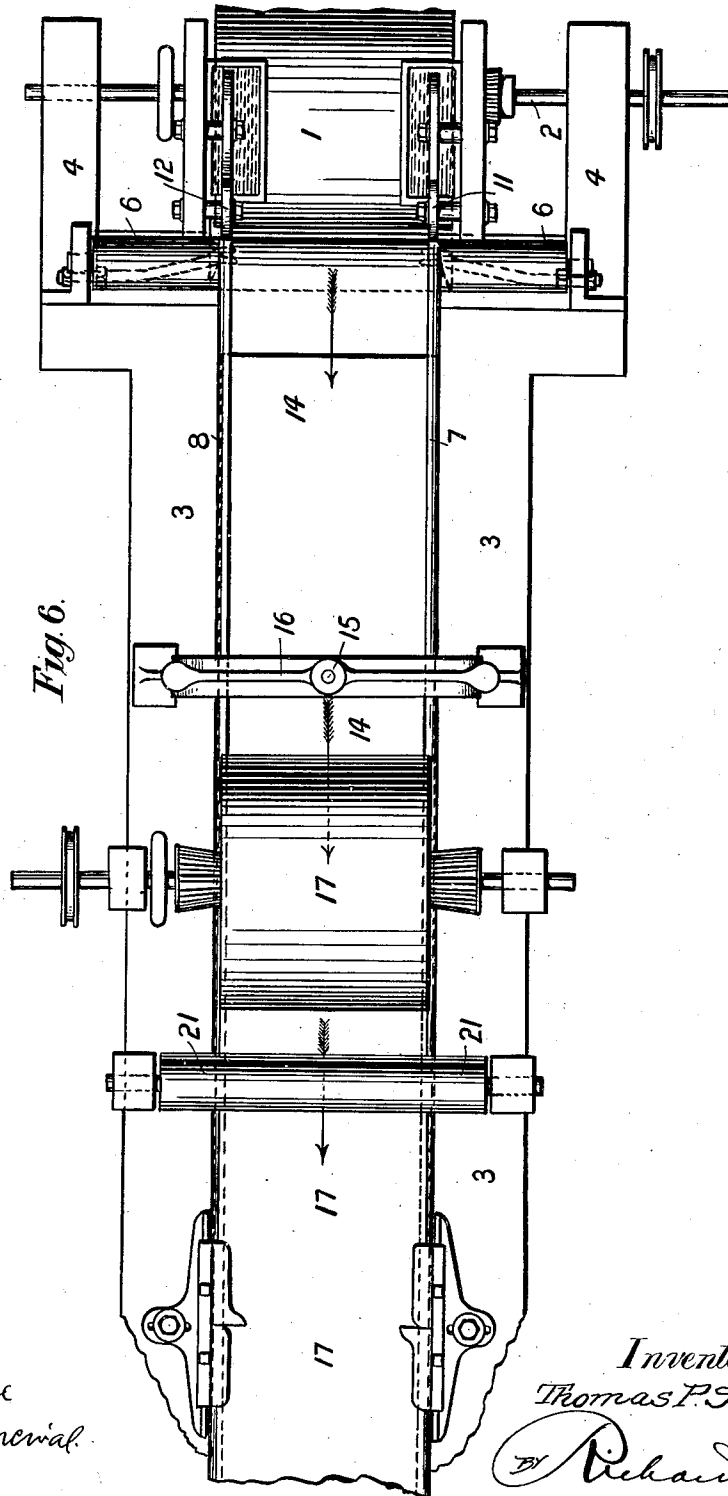
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4 SHEETS—SHEET 3



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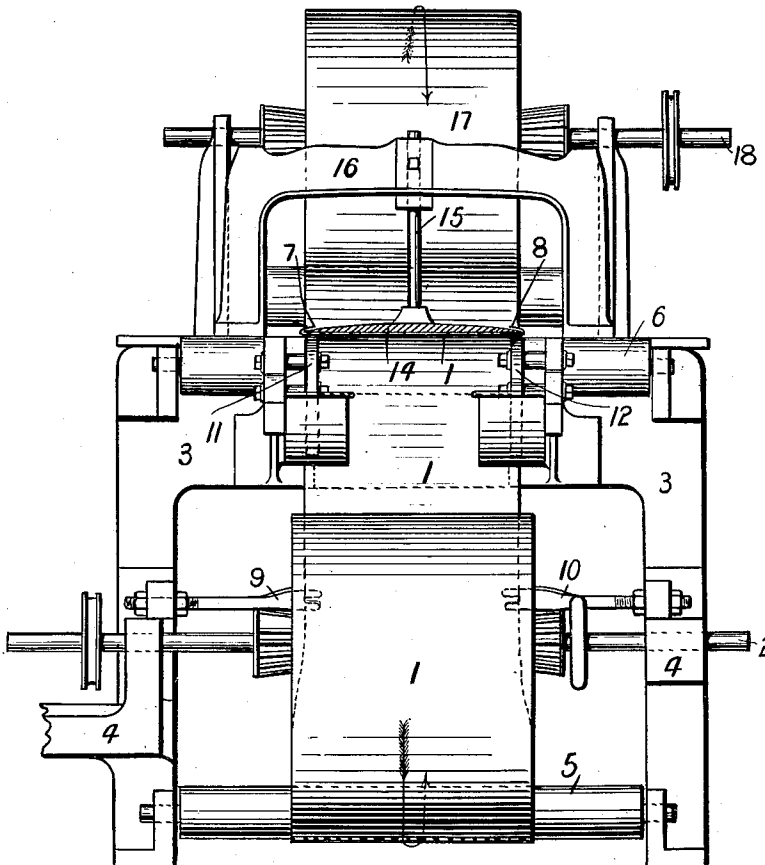
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4 SHEETS—SHEET 4.

Fig. 7.



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UNITED STATES PATENT OFFICE.

THOMAS PARKER SMITH, OF ERDINGTON, ENGLAND.

PAPER-BAG-MAKING MACHINE.

No. 820,071.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed June 21, 1905. Serial No. 266,316.

To all whom it may concern:

Be it known that I, THOMAS PARKER SMITH, paper manufacturer, a subject of His Majesty the King of Great Britain and Ireland, residing at Rea Gehl, Chester Road, Erdington, in the county of Warwick, England, have invented new and useful Improvements in Paper-Bag-Making Machines, of which the following is a specification.

This invention has reference to machines for making those paper bags which are of comparatively large size, such as millinery and laundry bags, which are made of cap-paper or other thin paper and which, owing to the thinness of the paper and the comparatively large size of the bags, have heretofore been difficult to make by machinery. By constructing the bags and the machines for them in accordance with this invention I am enabled to produce the large-size bags much more quickly than heretofore and with practically no waste and without a seam along the center of the back of the bag, which is so objectionable when the front of the bag has to be printed.

In carrying out my invention I employ a thin-paper-bag-making machine of the well-known kind in which the thin-paper bags are made continuously from a roll of paper and are cut off and one end to form the bottom is folded and pasted and the paper bags passed round a drying-cylinder, so that they are delivered by the machine finished and dried ready for use. In this machine for making these ordinary thin-paper bags the width of the roll of paper from which the bags are formed is rather more than twice the width of the finished bag, as the side portions of the paper are by the machine folded over a dividing-plate and their overlapping edges pasted together, forming a longitudinal seam along the center of the flat paper tube, which by the machine is divided into lengths, and one end of each length is pasted and folded over to form the bottom of the bag. To this machine I make certain additions, alterations, and improvements, so as to enable it to make large paper bags in accordance with this invention. The said machine which I employ has at one end a roll of paper which is about one and one-half inches, more or less, wider than the width of the finished bag, and this paper as it is unrolled from the roll passes under rollers and along and through guides, so that both its edges are turned over onto the body of the paper for a distance of about

three-quarters of an inch, more or less, and these turned-over edges are pasted by means of ordinary paste-rollers. The ordinary dividing-plate is situated, as is usual, above the continuous length of paper and underneath the folded edges of the same. Above the continuous length of paper from the first roll and in front of the bridge which carries the dividing-plate I provide another continuous roll of paper, which by guide-rollers or other means is fed in and above and onto the paper from the first roll, and both papers travel along the machine together at the same speed. The width of this paper in the second roll is the same or very slightly less than the width of the paper in the first roll after its two edges have been folded down, as aforesaid, and as the two papers travel along the paper from the second roll is pressed down onto the turned-over and pasted edges of paper from the first roll, thus forming the necessary flat paper tube of which the paper from the upper roll forms the top side and the paper from the first rolls forms the bottom side, and as this paper tube travels along it is divided into lengths and the lengths formed into bags by the ordinary mechanism of the machine, which forms no part of this invention.

My invention is illustrated by the accompanying drawings, on which—

Figure 1 is a plan of a thin-paper bag made by my improved machine. Fig. 2 is a sectional edge elevation of the same on line X X of Fig. 1. Fig. 3 shows a portion of the dividing-plate part of the machine and the portions of the two continuous lengths of paper as they meet and are fixed together in the machine to form the thin-paper tube, which by the machine is cut up into lengths to form bags, as aforesaid. Fig. 4 shows the same bag as Figs. 1 and 2, on a smaller scale, with the sides partly unstuck and separated and the bottom unstuck and turned up, so as to show the construction of the bag. Fig. 5 is a side elevation of so much of the ordinary thin-paper-bag-making machine as is necessary to illustrate my invention, this view showing the machine altered in accordance with my invention. Fig. 6 is a plan of the parts of the machine shown by Fig. 4, and Fig. 7 is an end view of the same.

The same reference-numerals indicate the same parts in all the figures.

1 is the first said roll of paper, mounted on the usual spindle 2 in the usual way at one

end of the machine-frame 3, said spindle being carried by brackets 4, which are fixed to the end of the machine-frame. The continuous paper 1 from this roll passes underneath a roller 5 and then up and over a roll 6 at the top of the machine-frame, and in its passage from the roll 5 to the roll 6 the two edges 7 8 of the paper 1 are by the ordinary fingers 9 10 folded over for a width of about three-quarters of an inch, more or less, along each edge. The ordinary paste-rollers 11 12 take up the paste in the ordinary way from the rollers 13 and deliver the paste onto the folded-over edges 7 8 of the paper 1 where said paper passes over the roller 6. 14 is the ordinary dividing-plate, carried on the top of the machine-table in the usual way by having a stem 15, which is carried by the bridge-piece 16, and this dividing-plate 14 is immediately over the continuous length of paper 1, but is underneath the folded-over edges 7 8 of the same, as will be clearly understood by an examination of Fig. 3. 17 is the second continuous roll of paper, which I provide in front of the bridge 16 and at a convenient distance above the dividing-plate 14, this roll of paper 17 being carried by an ordinary spindle 18 in the usual way by side brackets 19 20 or by other convenient means from the machine-table 3. The continuous length of paper 17 is carried down from the roll and underneath the cross-roller 21, (or there may be two or more of these rollers 21,) which press the continuous length of paper 17 onto the turned-over and pasted edges of the paper 1, thereby sticking the same together and forming the flat paper tube, of which the top side is formed by the paper 17 and the edges and bottom side are formed by the paper 1. The parts of the machine for dividing this thin-paper tube into lengths and for turning over and pasting the bottom and otherwise finishing the cut-off portions into bags and the other necessary parts of the machine are well known in machines of this kind, and therefore do not require to be herein described nor illustrated.

The bags when made by my improved machine will have the appearance shown by Figs. 1 and 2, by which it will be seen that the top side of the bag (marked 17) is formed by a portion of the roll of paper 17 and the bottom side (marked 1) is formed by a portion of the paper-roll 1, the edges 7 8 of which are folded over and pasted to the edges 24 25 of the other paper 17. The bottom 26 of the bag is formed in the usual way by the end 22 of the under side 1 of the bag and also the end 23 of the upper side 17 of the bag being pasted and folded over together upon themselves, the end 22 of the bottom side 1, which has the folded edges 7, 8, being made to slightly overlap the end 23 of the upper piece of paper 17, so that when they are folded upon the body of the bag, as in Fig. 1, to form the bot-

tom 26 of the bag the folded-over part 22 of the lower piece 1 will then be at the top and will be pasted and stuck to the body of the bag, (at 27, Fig. 4,) inclosing the folded-over end 23 of the upper piece 17, and thus a proper bottom is formed, which would not be the case if the end 22 did not overlap the end 23, as in that case the end 22 would not be pasted. This construction of the bottom of the bag by the machine is well known, and I make no claim to it except in combination with the formation of the bag from the two continuous lengths of paper in the said machine, as above described.

It will be seen that when the said thin-paper bags are made from two continuous rolls of paper worked together in the machine in accordance with this invention they can by changing the dividing-plate for a wider or a narrower one and adjusting the other parts of the machine to suit be made of any desired width, because no matter what the width of the bag may be there is only a small portion of each edge of one of the continuous papers to be folded over the dividing-plate and pasted instead of a portion of the paper having to be folded over at each side equal to more than half the width of the bag, as is the case when the flat paper tube for making the bags is made from one continuous piece of paper with the sides folded over and forming the seam along the center of the bag in the usual way.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a paper-bag-making machine of the kind herein referred to, the herein-described improved means for forming the continuous paper tube which by the machine is divided and formed into the bags, consisting of means for supporting two continuous rolls of paper one of which is somewhat wider than the required paper tube and bags and the other is about the same width as same, means for carrying and feeding the papers from said rolls, means adapted to fold over the two edges of the wider paper, paste-rollers adapted to paste the two folded edges, a dividing-plate and means for carrying the same, said dividing-plate being situated above the wider paper and under the folded and pasted edges of the same, means for feeding the continuous paper from the narrow roll and for pressing the same onto the folded and pasted edges of the paper from the wider roll, substantially as set forth.

2. In a paper-bag-making machine of the kind herein referred to, the combination with the dividing-plate and means for carrying the same, means for supporting a paper-roll the continuous paper of which travels underneath said dividing-plate, means for folding the edges of the continuous paper, said folded edges passing over the edges of the dividing-plate, paste-rollers which paste the said

folded edges, means for supporting a second
continuous roll of paper above the dividing-
plate and means for feeding and pressing the
paper from the second roll onto the pasted
5 and folded edges of the paper from the first
roll thereby forming a thin flat paper tube
for the purpose and in the manner substan-
tially as set forth.

In testimony whereof, I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

THOMAS PARKER SMITH.

Witnesses:

CHARLES BOSWORTH KELLEY
THOMAS JOHN ROWE